Specifications Document

For

Nutrient Analysis Software Approved by USDA for Administrative Reviews

USDA, Food and Nutrition Service
Pre-publication draft
April 2012

This document replaces the *Specifications and Functional Requirements for a School Food Service Software System*, last updated in March 2010. This document will be referred to, hereafter, as the specifications document.

State Agencies must use nutrient analysis software developed by a private software company and approved by the United States Department of Agriculture (USDA) for Administrative Reviews as mandated by the Final Rule: Nutrition Standards in the National School Lunch and School Breakfast Programs (1/26/12), specifically under 7 CFR Parts 210 and 220.

This specifications document includes the specifications and requirements for software companies to use when developing nutrient analysis software for State Agencies to use for lunch and breakfast Administrative Reviews. Developers who wish to have their nutrient analysis software evaluated and approved by USDA must follow the specifications and requirements included in this specifications document. These specifications and requirements are used by USDA's Food and Nutrition Service (FNS) as the basis for the evaluation and approval process for nutrient analysis software.

Approval by USDA does not mean that the program is endorsed by USDA or FNS.

FNS and the software evaluation coordinator welcome your comments, suggestions and feedback. Please forward information to:

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Introduction and Overview

The purpose of this specifications document is to provide the specifications and requirements for nutrient analysis software developed for use by State Agencies for Administrative Reviews mandated by the Final Rule: Nutrition Standards in the National School Lunch and School Breakfast Programs (1/26/12), specifically under 7 CFR 210.18.

The term “approved software” will be used in this document to refer to the nutrient analysis software approved by the United States Department of Agriculture (USDA) for Administrative Reviews mandated by the Final Rule: Nutrition Standards in the National School Lunch and School Breakfast Programs (1/26/12), specifically 7 CFR Parts 210 and 220.

On January 26, 2012, the Final Rule: Nutrition Standards in the National School Lunch and School Breakfast Programs was published, replacing the previous regulations under the School Meals Initiative for Healthy Children of 1995. This final rule was published in accordance with the requirements of the Healthy, Hunger-Free Kids Act of 2010. In this document, from here on, “Final Rule” will be used to refer to the requirements for the Final Rule: Nutrition Standards in the National School Lunch and School Breakfast Programs. More information about the Final Rule and Healthy, Hunger-Free Kids Act of 2010 can be found on the FNS website. (See list of resources at the end of this document.)

These new regulations for Child Nutrition Programs (CNP), specifically the National School Lunch Program (NSLP) and School Breakfast Program (SBP), allow for the use of one food-based menu planning system. These regulations require compliance with the meal pattern and nutrient standards, referred to as dietary specifications, for four nutrients.

Under the Final Rule, State Agencies, as part of the three-year review, must evaluate school menus through the nutrient analysis of all foods offered over a school week to ensure that meals meet the specific nutrient standards, or dietary specifications, for calories, saturated fat, and sodium. *Trans* fat will be evaluated using food labels and product specification documents.

Approved software is used to support State Agencies by calculating an accurate nutrient analysis of the menus and recipes offered in the NSLP and SBP. This nutrient analysis of menus averaged over a week is then compared to the required nutrient standards, or dietary specifications, for the age/grade group served.

Approved Software Programs

The purpose of approving software for Administrative Reviews is to provide State Agencies with nutrient analysis software that accurately analyze menus and compare the nutrient analyses to required nutrient standards (or dietary specifications). By approving software, USDA gives State Agencies a choice of

commercially available software which includes the same basic functionality and can be used to streamline the nutrient analyses required as part of the review process for auditing compliance with the required dietary specifications under the Final Rule.

Only software that meet the specifications and requirements and are approved by USDA may be used by State Agencies to conduct nutrient analyses required under the Final Rule. While the approved software may be used for other aspects of the review process, the required functionality is specific to requirements related to the dietary specifications. The required functionality does not include the food-based meal pattern requirements. (See Optional Functions, Food-Based Menu Planning Functions for information about the optional food-based functionality).

Purpose of the Specifications Document

The purpose of this specifications document is to assist the software developer with the creation of nutrient analysis software that meets the requirements for approved software. The specifications document also forms the basis for the evaluation and approval of the software.

The overall objective is to provide details about what the software must do, rather than how it will be done.

Instructions for Reading this Specifications Document

The intent is to move the developer through the required functionality of the approved software in a logical manner from food items and ingredients through menu development and nutrient analysis. This document describes the required functionality that software must have to meet the requirements for approval by USDA for Administrative Reviews.

This updated specifications document is organized to follow the format of the preliminary checklist evaluation form that is used by both software developers and the software evaluators to test new software against the USDA requirements. The general requirements are shown first, followed by specific details about each requirement. General guidelines with examples may be included, as well as references to other documentation or support materials. Recommendations may also be included in some sections. Recommendations are optional (not required for approval) and are generally offered to improve software usability. Frequently asked questions are included for most subjects, where applicable.

The approved software may be part of a larger food service system that includes inventory, purchasing, Free and Reduced application processing, or other functionality. It is recommended that the nutrient analysis software be available to use and purchase as a stand-alone software program that can be used without the other components.

Software Evaluation and Approval Process

Software developers, who wish to have their software approved by USDA, must submit their software to USDA for evaluation and review. The software evaluation and approval process is outlined in the Evaluation and Approval Process section of this document.

Child Nutrition Database (CN-D)

The software must include the current release of the Child Nutrition Database (CN-D). The CN-D must be the primary database used by the approved software. The CN-D is a product of the United States Department of Agriculture's (USDA) Food and Nutrition Service (FNS) managed through an independent contractor.

The CN-D is usually updated annually during the first quarter of the year. New software is required to include the current version, referred to by "release" number. Developers with approved software must update and submit their approved software within 90 days of when the new release is made available.

The CN-D is available to download from the Healthy Meals Resource System (HMRS) website (http://healthymeals.nal.usda.gov/cndatabase.html).

The document *Child Nutrition Database Version CNx: System Components and File Formats* (referred to in this document as the "file formats document") is also available from the HMRS website (See *Appendix B - Resources for Developers of Approved Software Programs*). This document, updated with each release of the CN-D, includes information about the files and tables that comprise the CN-D. It also includes information about the sources of the data included in the CN-D.

Food Items in the Child Nutrition Database (CN-D)

The primary table for food items in the CN-D is the Food Description (FDES) table. The nutrient data is provided in the Nutrient Values (NUTVAL) table using codes explained in the Nutrient Description (NUTDES) table. Source codes from the NUTVAL table are included in the following descriptions for your clarification, but they do not need to be included in the software program. The CN-D includes food items from the following four sources.

Food Items from the USDA National Nutrient Database for Standard Reference (SR):

The software program must include the food items in the CN- D from the SR. These food items have the source code of 1 for USDA National Nutrient Database for Standard Reference.

Food Items from the USDA Recipes for Schools (Standardized Recipe Foods)

*The software program must include the food items in the CN-D that correspond to the **USDA Recipes for Schools***. These food items have the source code 2 for standardized recipe calculation. These food items correspond to the set of production recipes produced by USDA for schools participating in the Child Nutrition Programs, ***USDA Recipes for Schools.*** (See *Appendix B - Resources for Developers of Approved Software Programs).*

The software program must show the recipe code from the Commodity or Recipe Code field of the FDES table. The user must be able to search by the recipe code and the recipe code must also be displayed on search results.

Food Items from Food Manufacturers

The software must include the data for the food items in the CN-D from food manufacturers. These foods have the source code of 3 for food industry.

Foods from the USDA Food Distribution Program

The software must include the data for the USDA Foods (formerly commodity foods) available to schools through the USDA Food Distribution Program included in the CN-D. These food items have the source code of 4 for commodity.

. *The software must show the commodity code from the Commodity or Recipe Code field of the FDES table. The user must be able to search by the commodity code and the commodity code must also be displayed on search results.*

Changes to Data in the CN-D

Discontinued and Removed Data

The software must include all data in the CN-D that is marked with the status of discontinued (d). Data in each table of the CN-D file includes a status field. Data is marked with the status “a” for active or “d” for discontinued. The status field of the CN-D is intended to notify developers and users of approved software that discontinued data, such as food items used in recipes and menus, will no longer be included in the next release of the CN-D. This notification of future removal is intended to provide users with ample time to replace their data with updated or new data. Software developers must ensure that software programs do not interfere with this alert mechanism. **The data marked with “d” should <u>not</u> be removed from the program’s database until it is physically removed from the CN-D with the next release.**

Data must be removed from the software when it is removed from the CN-D. The records marked as discontinued (d) in a CN-D release will be removed from the next CN-D release. For example, data marked "d" in CN14 was removed in CN15. All discontinued data must be removed from the software program when it is removed from the CN-D.

The software must mark or highlight FDES table items that are marked "d", so the user knows which foods will be removed with the next release of the CN-D.

Additional recommendations:

Recommend showing the "d" status for Weights (WGHT) table data that is marked as discontinued.

Recommend providing a system of alerting the user about WGHT table units of measure and FDES foods marked "d" that are currently being used in recipes or on menus, such as a warning message or report showing foods currently used that are now marked as "d". This will allow the user ample time to replace foods marked "d" on recipes and menus before these items are removed from the CN-D.

New Foods:

All new foods added to the FDES table must be added to the software. The file formats document for the current CN-D release includes the start date for the Data Added field for new data in the current release.

Modified Foods:

All data for foods that have been modified must be changed in the software to match the changes in the CN-D. Data that has been modified has a date in the Last Modified field. The file formats document for the current CN-D release includes the start date for modified data in the current release.

Nutrient Data in the CN-D

Nutrient data from the NUTVAL table must be linked to the corresponding food item from the FDES table.

Zeros for nutrient data must only be used for true zero values. Nutrient data represented by a zero means that the food was tested for that nutrient, but there was no amount of that nutrient found in the food. For example, a value of zero for calories, or food energy, means that this food contains no calories. Values of zero are not to be interpreted as missing values or blanks; they must remain zeros.

A code or symbol must be used for missing nutrient values. Blank nutrient values in the CN-D are not to be interpreted as zeros. Blank nutrient values should be interpreted and marked as missing values; for example, an asterisk with a footnote would indicate that the optional nutrient value has not been provided. Additionally, any nutrient total containing a missing value must also be marked as missing nutrient data. **Use of a zero to represent a missing value is incorrect.** The optional nutrients, (See Required Nutrients section of this document.) are the only acceptable nutrients to be assigned missing values in the CN-D. There should be no missing values for calories, saturated fat, and sodium.

Modified data from the NUTVAL table must be updated in the approved software program. Changes to nutrient data in the NUTVAL table must be updated in the approved software program.

Supporting files in the CN-D

Food Buying Guide (BUYGD & BYGDLNK) Tables:

The Food Buying Guide (BUYGD) table contains data on the quantity of ready-to-serve, ready-to-cook, or cooked food obtained from a purchased unit of food. The BUYGD table is based upon the most recent version of the *Food Buying Guide for Child Nutrition Programs* (See Appendix B for current information about this publication.). In this document, this publication is referred to as the Food Buying Guide.

The software must include the Food Buying Guide files (BUYGD and BYGDLNK tables) as a reference for the user. The Food Buying Guide information from the BUYGD table must be linked to the corresponding CN-D food item(s) using the BYGDLNK table. The data specific to a CN-D food item must be shown with that food item. The developer may also have a link to the entire file of Food Buying Guide data.

The software must show the Food Buying Guide information for all CN-D foods that have a BYGDLNK at the food item level. Some CN-D food items are linked to one BUYGD code while others are linked to multiple BUYGD codes. Some BUYGD codes are linked to more than one CN-D food item. Some CN-D food items are not linked to a BUYGD code.

The Food Buying Guide information must be complete, correct, and easy-to-read.

Additional recommendations:

Show the Food Buying Guide data as a reference when the user is selecting ingredients to add to recipes.

Gram Weights and Measure Descriptions File (WEIGHTS or WGHT table) (WGHT):

The software must provide all units of measure from the WEIGHTS table for the corresponding FDES food item whenever the user will select ingredients to add to a recipe or menu. These units of measure specific to the FDES food item must be shown to the user at the recipe level when selecting ingredients for a recipe. These units of measure must also be shown when adding food items to a menu, if the program allows the user to add food items directly to a menu. If the program requires the user to set up menu items in addition to recipes, these units of measure must be available for the FDES food item when the user creates the menu item.

The unit of measure from the WEIGHTS table must be shown for fractional and multiple units of measure. The developer may create a whole unit of measure, such as "1 cup" from "1/3 cup". However, the original WEIGHTS table unit of measure must also be shown. It is preferred that the original unit of measure is shown at the recipe and menu levels, where applicable. However, it is acceptable to show the whole unit of measure in the selection menu (such as a pull-down menu), as long as the original WEIGHTS table unit of measure can easily be viewed from the recipe or menu function. The user must not be required to leave the recipe or menu function and return to the food item function to view the WEIGHTS table data. The developer may provide a link to this information from the recipe or menu entry windows.

Units of measure from the WEIGHTS table must be tagged with the source of USDA. The user must be able to determine which units of measure were provided by USDA in the WEIGHTS table versus measures added by the developer. The developer must have a way of listing or marking the WEIGHTS table units of measure so it is clear to the user that these units of measure were provided by USDA. Conversions to whole units of measure or other required measure conversions (see Measure Conversions section of this document) must be tagged as developer-added. The developer may use a code, symbol, abbreviation, or grouping system to tag the units of measure. The developer may also mark other sources of measurement data, such as developer-added or user-added, but it is not required.

Additional recommendations:

Show the weight of the unit of measure from the CN-D as a reference to the user. This is especially useful for each-type units of measure, such as piece or serving, that do not include a weight or volume measurement and package sizes that do not include a weight

Show the units of measure from the WEIGHTS table at the food item or ingredient level.

Show the “d” status for WEIGHTS table data that is marked as discontinued.

Provide a system of alerting the user about foods and WEIGHTS table units of measure marked “d” that are currently being used in recipes or on menus, such as a warning message or report showing foods currently used that are now marked as “d”

Additional CN-D Requirements

CN-D Categories or Other Grouping System

The software must have a grouping system for food items and recipes. This grouping system may be the grouping system provided by USDA in the CN-D, a modification of the USDA grouping system, or a unique grouping system. The categories used in the CN-D are found in the Food Category Name Table (CTGNME) of the CN-D**.** The CN-D categories may also be used for user- or developer-added food items.

Full description and Child Nutrition Database Number (CND#)

The full description (Descriptor field) from the CN-D must be shown to the user at the food item, recipe, and menu planning (for single-ingredient menu items) levels of the program. The developer may allow the user to enter a shorter menu name for CN-D foods, as long as the full description (Descriptor field) is still available to the user. For programs that allow the user to link to or download from the CN-D, the full description of a CN-D food item must be shown for the linked or downloaded food item.

The CND# (or CN Code) must also be shown to the user at the food item, recipe, and menu planning (for single-ingredient menu items) levels of the program. The developer may use the CND# as the identification number for CN-D food items. If the developer uses a unique item number, the CND# must also be shown in a separate field. For programs that allow the user to link to or download from the CN-D, the CND# must be shown for the linked or downloaded food items.

Additional recommendations:

Provide the full description (Descriptor field) instead of the abbreviated description (Abbreviated Descriptor) wherever the user views information about the food item, including search results. The abbreviated descriptor often contains cryptic abbreviations that are unique to the source of the data.

Provide a method for the user to enter a short description or menu name for the food items to be displayed on menus. This can be done for CN-D food items or for ingredients linked to CN-D food items.

Source of Nutrient Data

The source of the nutrient data must be shown to the user. It must be clear to the user which data is from the CN-D and which has been added by the user or developer. The developer may use "USDA", "CN", "CN-D", or similar for all CN-D data. USDA prefers the use of a single source tag, such as "USDA" to mark the CN-D data. However, use of the CN-D Source Code field tags is acceptable. As an alternative, the developer may have a unique numbering system or a separate section for the CN-D items. However, it must be clear to the user that the source of the data is from the CN-D.

Source tags used for CN-D food items must be different from source tags used for user- or developer-added food items.

Units of measure from the WEIGHTS table must be tagged as USDA. The user must be able to determine which units of measure were provided by USDA in the WEIGHTS table of the CN-D. The developer must have a way of listing or marking the WEIGHTS table units of measure so it is clear to the user that these units of measure were provided by USDA. Conversions to whole units of measure or other required measure conversions (see Measure Conversions section of this document) must be tagged as developer-added. The developer may use a code, symbol, abbreviation, or grouping system to tag the units of measure. The developer may also mark other sources of measurement data, such as developer-added or user-added, but it is not required.

Additional Recommendations

Include a source field or tag for CN-D items even if these items are grouped in a separate section for CN-D food items or have a unique numbering system for CN-D food items.

Integrity of the CN-D Data

The user or developer may not delete food items from the CN-D. CN-D items may be moved to a working database to create a smaller subset of items. CN-D food items may be copied, downloaded, or linked to this working database. The identity of the CN-D food items must be maintained. CN-D food items may be hidden to create a smaller subset of food items, as long as the user can view and re-activate any or all CN-D food items, if desired.

The data from the CN-D must be locked. The user may not edit data from the CN-D. The developer may allow the user to enter a shorter menu name for CN-D items, as long as the full description (Descriptor field) is still available to the user.

Appropriate length fields must be available, especially for description, CND#, category, manufacturer, product code, and source of nutrient data. Refer to the file formats document for field lengths (See *Appendix B - Resources for Developers of Approved Software Programs*).

Nutrient Composition Report

The software must generate a Nutrient Composition Report that shows the nutrient values of the food items from the CN-D. The user must be able to request food items by description, CND# (or ID#), or category. This report must include calories, saturated fat (in grams) and sodium (in milligrams). Other nutrients may be included if desired by the user.

Additional Recommendations:

Give the user the option to create the Nutrient Composition Report for a range of food items from the CN-D. It is highly recommended that the user be able to create the reports for more than one CN-D food item at a time.

Allow the user to select a subset of CN-D food items by searching the database (either CN-D or local database), by CND#, description, keyword, or category, and then create this report for the smaller subset of CN-D food items.

Provide the user with the option to create the Nutrient Composition Report for all food items from the CN-D.

Frequently Asked Questions Related to the CN-D

1) *Why are there missing values for trans fat in the CN Database?*

According to the dietary specification (nutrient standard) for trans fat in the final rule, the nutrition label or manufacturer's specifications for food products or ingredients must specify zero grams of trans fat per serving. *Trans* fat is not required in the State Agency nutrient analysis of the one-week menu in approved software. As more *trans* fat information becomes available, it will be included in the CN Database required by all USDA-approved software.

2) *May we keep data that has been removed from the CN-D in our software for historical purposes*?

Yes. The software may keep food items and other data that has been removed from the CN-D for historical purposes, if it is maintained in a separate section and clearly marked as such. The software must not allow the user to place or maintain any food items removed from the CN Database in active menus or recipes.

3) *We already have a system of categorizing food items in our software. Do we need to change to the USDA categories*?

No. The software is required to have a system of categorizing the food items in the program's database. It does not have to be the system of categories used by USDA in the CN-D. It may be user-specified categories, developer-specified categories, or modified USDA categories.

4) May we allow the user to create a smaller working database or link to desired CN-D food items rather than having this large database available to the user?

Yes. Software developers or users can create a customized user-database including a reduced number of food items selected from the CN-D to meet the user's inventory and specific menu planning needs. This can be accomplished by hiding unused CN-D food items so that users may search through a smaller database during menu planning. The entire CN-D must still be available to the user, as needed, to select new food items to add to the working database. The user must know that items have been hidden and have the knowledge and ability to add the items back into their working database. It is also recommended that a list of the hidden items be readily available to the user. The developer may also allow the user to link to specific CN-D food items from an inventory or ingredient database. The user must still be able to view and access the entire CN-D.

5) May we allow the user to add local units of measure for foods from the CN-D?

Yes. The software may allow the user to add additional, local units of measure to CN-D food items, as long as these user-added units of measure are tagged as such by the software program. It must be clear to the user which units of measure were provided by USDA in the CN-D and which were added by the user.

6) Do we need to show all fields provided in the CN-D?

No. Some fields are provided for data integrity only. The data added and date modified fields do not need to be shown to the user. The status field does not have to be shown, per se, but FDES food items must be marked for the user

when the status is “d” for discontinued. The value type code in the NUTVAL file should not be shown to the user. The software developer may choose to omit the Abbreviated Descriptor field from the FDES file.

7) *May we include data from the SR that is not included in the CN-D?*

If data from the SR is included in the approved software, data from the CN-D must take precedence. Duplicate data from the SR may not be provided as both a SR food item and a CN-D food item in the approved software program. The duplicate SR food item must be removed from the software’s database. The SR data that is included as part of the CN-D must not be updated until it is updated with the next CN-D release. Food items from the SR must be tagged differently than food items from the CN-D.

8) What do we need to know before we update to the new release of the CN-D?

1) FNS adds new SR food items, typically used by schools, to each release of the CN-D.

2) All Source_Code 1 food items in the CN-D are from the SR, any changes to those food items in the SR will also be made to the CN-D.

3) FNS periodically adds new data to the CN-D. For example: Food Buying Guide data, updated USDA recipe analysis data, and new USDA Food Distribution Program foods (USDA Foods; formerly commodity foods) nutrient data.

4) The file formats document (http://healthymeals.nal.usda.gov/cndatabase.html) is updated with each release of the CN-D and provides helpful information about the CN-D files and fields, as well as changes to the format of the CN-D.

5) The structure of the CN-D file is intended to mirror the SR. Any changes made to the structure of the SR will also be made to the structure of the CN-D.

6) The database contractor is responsible for maintaining and expanding the CN-D. The database contractor adds the nutrient profiles submitted by the food industry (Source_Code 3). Food manufacturers may send the nutrient data directly to the contractor in the CN Database web tool at: http://healthymeals.nal.usda.gov/cndatabase.html.

7) Software developers should notify the Software Evaluation Coordinator immediately if errors are discovered in the new release.

Create, Update, and Save Food Items to the Local Database

The local database refers to the main working database of the software. This database may be based upon and include the entire CN Database (CN-D) or it may be a separate database to which CN-D food items are linked or downloaded. Local food items are those food items added to the local database by the user or developer.

Enter Food Items into the Local Database

The user must be able to enter additional food items to the software's database. The user must be able to enter nutrient data for food items that are not included in the CN-D. The user may have nutrient data from the manufacturer, another database, a food label, or another source.

The user must be able to enter the gram weight of the serving size upon which the nutrient data is based. The user must be able to enter the gram weight, so that the program can make appropriate conversions to nutrients per 100 grams and other units of measure. For example, the nutrient data may be for "1/2 cup = 120 grams", so the user must be able to enter "120 g" for the gram weight upon which the nutrient values are based.

The software must be able to convert the user-entered nutrient data to "nutrients per 100 grams" and nutrients per other units of measure, including the required units of measure listed in the Measure Conversions section of this document. The software program must be able to convert the nutrient data to "nutrients per 100 grams" to be consistent with the format of the CN-D and to have a common unit for comparison. See below for instructions for converting data to "nutrients per 100 grams".

Conversion of Nutrient Data to Nutrients per 100 grams

When the user enters the nutrient values listed on the food label (Nutrition Facts panel) or manufacturer's specifications the software should use the following equation to convert the nutrient values "per serving" to nutrient values "per 100 grams":

$$a/b = x/100$$

where a = nutrient amount per serving (such as ½ cup provides 1.2 mg iron, so a=1.2)

b = weight of the serving size (such as ½ cup= 80 grams, so b =80)

x = nutrient amount per 100 grams

Example of Calculation of Nutrients "per 100 grams"

The following is an example of nutrients listed on a food label or nutrition information sheet. The label used in the example to demonstrate the methodology is for illustrative purposes only.

Nutrition Facts

Serving Size: 1 cup (228g)
Servings per Container: 2

Amount per Serving:

Water	40 g
Calories	260 calories
Protein	5 g
Total Fat	13 g
Saturated Fat	5 g
Trans Fat	1 g
Carbohydrate	31 g
Dietary Fiber	3 g
Ash	10 g
Cholesterol	30 mg
Sodium	660 mg
Calcium	150 mg
Iron	.72 mg
Vitamin C	.52 mg
Vitamin A	200 IU

WATER	40g/228g = x/100g	= 18g Water/100g
CALORIES	260g/228g = x/100g	= 114 Calories/100g
PROTEIN	5g/228g = x/100g	= 2.19g Protein/100g
TOTAL FAT	13g/228g = x/100g	= 5.7g Total Fat/100g
SATURATED FAT	5g/228g = x/100g	= 2.19g Saturated Fat/100g
TRANS FAT	1 g/228g = x/100g	= .44g *trans* fat/100g
CARBOHYDRATE	31g/228g = x/100g	= 13.6 g Carbohydrate/100g
FIBER	3g/228g = x/100g	= 1.31g Fiber/100g

ASH	10g/228g = x/100g	= 4.39g Ash/100g
CHOLESTEROL	30 mg/228 g = x/100 g	= 13.16 mg Cholesterol/100 g
SODIUM	660 mg/228 g = x/100 g	= 289 mg Sodium/100 g
CALCIUM	50 mg/228 g = X/100 g	= 65.79 mg Calcium/100 g
IRON	72 mg/228 g = x/100 g	= 31.58 mg Iron/100 g
VITAMIN C	52 mg/228 g = x/100 g	= 22.81 mg Vitamin C/100 g
VITAMIN A	200 IU/228 g = x/100 g	= 87.72 IU Vitamin A/100 g

The software must convert nutrient data internally for use in nutrient analysis reports and displays for food items, recipes, and menus. The developer may determine the units upon which the nutrient data is displayed, except where instructed otherwise in this specifications document. Refer to the Measure Conversions section of this document for more information and examples of conversions to other units of measure.

The software must have at least five digits and three decimal places (thousandths) available for entry of nutrient values.

Starting with CN17 in 2013, the software must allow the user to enter vitamin a data in both Retinol Activity Equivalents (RAE) and International Units (IU).

The source of the data must be shown to the user. It must be clear to the user which data is from the CN-D and which has been added by the user or developer. One source tag can be used for all non-CN-D data, such as "local" or "user" or the developer may have multiple source tags for non-CN-D data. Source tags from the CN-D may not be used for locally-added data.

The identification numbers (ID#s) used for the local food items must be outside of the range of Child Nutrition Database numbers (CND#s) or CN Code numbers used by the CN-D. Numbers within the range of the CN-D may not be used, even if not currently assigned to a CN-D food item because they may be assigned in the future. The United States Department of Agriculture (USDA) has recommended that the numbers 900,000 to 999,999 be used for locally-added items. Programs that use a separate "working" or "inventory" database (to which CN-D food items are linked or downloaded) may not need to follow this numbering system.

The nutrient data of locally-added food items must not be removed, lost, or deleted when the software's database is updated with the new release of the CN-D.

Missing nutrient data must be marked. Data added by the user or developer may have missing nutrient values for some nutrients. This is acceptable as long as the user can easily determine which values are missing and which nutrient analysis totals include missing data.
The same system for marking missing nutrient values, *such as blanks, a symbol, or a code must be used throughout the program.*

Nutrient analysis totals that include missing nutrient data must also be marked. The developer may have a system for marking the nutrient analysis totals that is different from the system for marking missing nutrient values for one food item.

Zeros may <u>not</u> be used for missing data. Zeros must only be used to represent true zero values.

Missing data from the CN-D must also be marked using the same system. The CN-D does not include any missing values for the required nutrients (calories, saturated fat, and sodium*).* However, there may be missing values (or blanks) for the optional nutrients. Nutrient values and totals that include missing nutrient values from CN-D food items must also be marked.

The system, such as blanks, codes, or symbols, used to define missing data must be defined for the user in a key or legend on all reports or displays where this system is used.

The developer may add additional ingredients and nutrient data to the software's database. In addition to the requirements above, the following rules must be followed:

Software developers may include additional data from the *USDA National Nutrient Database for Standard Reference (SR)* that has not been included in the CN-D, if the following requirements are met:

The source of the SR data must be marked differently than the CN-D data. The user must be able to determine which data is from the CN-D.

The CN-D takes precedence over the SR data. Data from the SR that is included in the CN-D must be maintained and updated as part of the CN-D, rather than at the time of SR updates.

Duplicate data from SR must be removed keeping the data from the CN-D in the software. If the software developer adds SR data to the software that duplicates CN-D data, the SR data must be removed and the CN-D data retained. Food items from SR that are in the CN-D may only be included once as part of the CN-D.

Additional nutrients from the manufacturer, SR, or other data source may be included, but it is recommended that only the nutrients provided in the CN-D be included. If additional nutrients are included, they must be shown in a separate section or separate report. Presenting the CN-D nutrients first followed by the additional nutrients is also an acceptable option.

Enter Nutrient Data from Food Labels into the Local Database

The software must provide the user with the capability to convert the nutrient analysis information listed on the food label (Nutrition Facts panel) of a food item as a percent of Daily Value (%DV) to the appropriate nutrient values per 100 grams of a food item for vitamins A (IU only), vitamin C, calcium, and iron.

This method should be used when the food manufacturer only provides the %DV, such as on a food label. The user will enter the percentage as listed on the food label (Nutrition Facts panel) or fact sheet. The software program will calculate the nutrient amount using the following equations:

CALCIUM –

The Daily Value (DV) for calcium used on the food label is 1000 mg. The constant for the first part of the equation is 1000 mg.

1000 mg X y% = x mg calcium

Where y% = %DV
x = value for amount of calcium

IRON –

The DV for iron used on the food label is 18 mg. The constant for the first part of the equation is 18 mg.

18 mg X y% = x mg iron

Where y% = %DV
x = value for amount of iron

VITAMIN C –

The DV for vitamin C used on the food label is 60 mg. The constant for the first part of the equation is 60 mg.

60 mg X y% = x mg vitamin C
Where y% = %DV
x = value for amount of vitamin C

VITAMIN A –

The DV for vitamin A used on the food label is 5000 IU. The constant for the first part of the equation is 5000 mg. Please note that the DV uses IU for measure of vitamin A. The %DV for vitamin A in RAE may not be calculated because at this time there is no DV for vitamin A in RAE.

5000 IU X y% = x IU vitamin A
Where y% = %DV
x = value for amount of vitamin A

Example of Converting from % DV to Nutrient Value

The following is an example of nutrients listed on a food label or nutrition information sheet. The label used in the example to demonstrate the methodology is for illustrative purposes only.

Nutrition Facts

Serving Size: 1 cup (228 g)
Servings per Container: 2

Amount per Serving:

Water	40 g
Calories	260 calories
Protein	5 g
Total Fat	13 g
Saturated Fat	5 g
Polyunsaturated Fat	8 g
Carbohydrate	31 g
Dietary Fiber	3 g
Total Sugar	5 g
Ash	10 g
Cholesterol	30 mg
Sodium	660 mg
Calcium	15%
Iron	4%
Vitamin C	2%
Vitamin A	4%

CALCIUM

1000 mg X 15%	= 150 mg Calcium/serving (228 g)
150 mg/228 g = x/100 g	= 65.7 mg Calcium/100g

IRON

18 mg X 4%	= .72 mg Iron/serving (228 g)
.72 mg/228 g = x/100g	= .32 mg Iron/100 g

VITAMIN C

60 mg X 2%	= 1.2 mg vitamin C/serving (228 g)
1.21 mg/228 g = x/100g	= .53 mg vitamin C/100g

VITAMIN A

5000 IU X 4%	= 200 IU/serving (228 g)
200 IU/228 g = x/100 g	= 87.72 IU vitamin A/100 g

If the percentage listed for vitamin A, vitamin C, iron or calcium is "less than 2 percent", <u>as indicated on the food label,</u> the user must enter zero into the equation.

Edit Food Items in the Local Database

The user must be able to edit the data entered for user-added food items.

Additional recommendations:

Prompt the user to save edited data.

Include a system of protecting user-entered nutrient data from accidental change. For example, add a confirmation message that shows before saving any changes.

Delete Food Items in the Local Database

The user must be able to delete user-added food items from the software's database.

The user or developer may not delete food items from the CN-D. Food items may be moved to a working database to create a smaller subset of items. CN-D food items may be copied, downloaded, or linked to this working database. The identity of the CN-D food item must be maintained. Food items may be hidden to create a smaller subset of food items, as long as the user can view and re-activate any or all CN-D food items, if desired.

Additional recommendations:

Require the user to confirm deletion of all data before it is deleted.

Frequently Asked Questions Related to Adding Food Items to the Local Database:

1) *We noticed that there are many missing nutrient values for trans fat in our software. Can we replace the missing values with zeroes?*

   No. There is often confusion between missing nutrient data and zero values for nutrient data. If a value is missing, it cannot be assumed it is zero, even if it is likely that the item contains little or none of the nutrient. Missing nutrient data means that the value is unknown. Missing nutrient values or nutrient totals including missing nutrient values for one or more items must be marked as such in the approved software programs. These values are marked, so the user of nutrient analysis software can see that the total shown does not completely represent the amount of the nutrient in the food item, recipe, or menu. The user may then look at the items with missing values and decide if the total would likely be more or less based on which food items have missing values. It is inappropriate for a user to replace missing values with zeroes. A true zero value for a nutrient means that it does not contain any of the nutrient (or very little, as some zero values are based upon less than certain fractional amount for FDA labeling purposes). As more *trans* fat information becomes available, it will be included in the Child Nutrition Database required by all USDA-approved software. Note that under the requirements of the final rule, *trans* fat does not need to be included in the one-week nutrient analysis. According to dietary specification (nutrient standard) for *trans* fat in the final rule, the nutrition label or manufacturer's specifications for food products or ingredients must specify zero grams of *trans* fat per serving.

2) *May we include nutrient data for additional nutrients that are not included in the CN Database*?

   While we recommend that only the same nutrients provided by the CN Database are included, developers may include other nutrients in the software program. Nutrients required by the Final Rule (calories, saturated fat, and sodium) must be shown on a separate report or display. The optional nutrients in the CN-D may be included without tagging or marking these nutrients. If a small number

of additional nutrients are added, it is acceptable to separate the required nutrients from the other nutrients on the reports and displays, such as including them in a separate section or including a line to separate the required nutrients from the others. A small number of additional nutrients may also be marked with a symbol or code. Any codes or symbol used to mark nutrients not included in the CN-D must be defined in a key or legend wherever it is used.

3) *What is the conversion factor from RAE to IU?*

At this time, there are no simple "rule of thumb" conversions from RAE to IU. At this time, software developers should not attempt to make a conversion between RAE and IU. Starting with CN17 in 2013, RAE will replace RE in the CN Database.

4) *How many digits should we allow in the field for nutrient values?*

The software program should allow at least five whole numbers plus three decimal places (eight digits plus a decimal point) for entry of nutrient values. It is recommended that software programs allow entry for and show no more than three decimal places (thousandths) for any nutrient values. The CN-D shows a maximum of three decimal places and the requirement for user-entered ingredients is three decimal places.

5) May we prevent the user from saving data that is missing nutrient values?

The only data available to the user may be missing some nutrient values. It is acceptable to allow the user to save data that is missing nutrients. The missing nutrient data and any totals that include the missing nutrient data must be marked as including missing nutrient data. The developer may prevent the user from saving data that is missing calories, saturated fat, or sodium. In the past some developers have not allowed the user to save data that is missing the macronutrients (fat, carbohydrate, protein) or calories. This is acceptable. The developer may also prevent the user from saving food items that have no nutrient data. We recommend that the developer show a warning message to the user when no nutrient data is entered for an ingredient.

6) *May we include data from the SR that is not included in the CN-D?*

If data from the SR is included in the approved software, data from the CN-D must take precedence. Duplicate data from the SR may not be provided as both a SR item and a CN-D item in the approved software program. The duplicate SR item must be removed from the program's database. The SR data that is included as part of the CN-D must not be updated until it is updated with the next CN-D release. Food items from the SR must be tagged differently than foods from the CN-D.

9) *May we show the %DV for other nutrients in addition to iron, calcium, vitamin A, and vitamin C?*

Yes. It is not a requirement to show the user the %DV for any nutrient. If desired, the software program may show the %DV for other nutrients, as long as there is a DV established by the Food and Drug Administration (FDA) for use on the food label. Refer to the Food section of FDA's Web site (see Appendix B) for DVs for other nutrients. However, it is not necessary to show the %DV and it is of limited value to the user since further calculations and comparison to the nutrient standard are based on actual nutrient values. The software program must allow the user to enter the %DV from the food label when entering local food items, so that actual nutrient values can be calculated by the software program.

10) Do we need to show the %DV for all nutrients?

No. The purpose of the %DV is to allow the user to enter the %DV from a food label and obtain a nutrient value. The software program only needs to provide a field for the user to enter a %DV for nutrients in the CN Database that are shown on food labels as %DV: calcium, iron, vitamin C, and vitamin A. This field does not need to be displayed after the nutrient value is calculated and saved.

Food Item Nutrient Analysis Report

The software must create a Food Item Nutrient Analysis Report that lists the food items in the software's database (from the CN Database [CN-D] and local sources) with their associated nutrient values for calories, saturated fat, and sodium.

The user must be able to search for desired food items by individual description or ID number (CND# or locally assigned ID number).

The user must be able to search by a range of descriptions or ID numbers. The user must be able to include multiple food items in this report.

Additional Recommendations:

Provide an additional report that includes all of the nutrients provided in the CN Database or as selected by the user from CN Database or locally-added nutrients.

Allow the user to also search by category (or multiple categories).

Provide the user with the option to create the Food Item Nutrient Analysis Report for all food items. The user should be able to create a set of all food

items, if desired, by selecting different categories or ranges of ingredients. The software developer may require the user to select different categories or ranges of ingredients rather than allowing the user to select "all" to create one large set of all the ingredients.

Allow the user to display this report before printing because of the large data set that may be requested. Also, recommend confirmation before printing large reports, such as a report of all the food items in the database.

Frequently Asked Questions about the Food Item Nutrient Analysis Report

1) *Why is trans fat not required on the nutrient analysis reports?*

   According to dietary specification (nutrient standard) for *trans* fat in the final rule, the nutrition label or manufacturer's specifications for food products or ingredients must specify zero grams of trans fat per serving. *Trans* fat is not required in the State Agency nutrient analysis of the one-week menu in an approved software program.

2) *Do we have to allow the user to print all food items at one time?*

   Some software developers have expressed concern about the quantity of data being generated when the user selects "all" for recipes, food items, or the entire CN-D. The program does not have to allow the user to select "all" for reports for any of the software programs' databases. However, the user must be able to display or print, if desired, a complete set of CN-D and other locally-added data. This can be done by selecting smaller subsets of data, such as by category or a range of the alphabet. The developer may include the data from a subset of food items used by the user, such as a working or local database in addition to the CN-D data.

Production Recipes

Create Recipes

The software must allow the user to create and save user-added recipes. Recipes should be entered as "production recipes" with raw ingredients and amounts for production staff to use during food preparation.

The user must be able to enter the recipe category, recipe number, recipe name, and the name/description of ingredients.

The user will specify the yield (or number of portions) per recipe. The number of servings will refer to the number of servings a recipe will yield.

The user must be able to enter two units of measure descriptions with amounts for the same ingredient, if needed. For example, if the ingredient in a recipe is all purpose flour and the preparation amount is 1 cup + 1 tbsp, the user must be able to enter "1 cup" plus "1 tablespoon". If the ingredient in a recipe is low fat milk and the preparation amount is 1 quart – 3 tbsp, the end user must be able to enter "1 quart" minus "3 tablespoons". However, if there is only one unit of measure for an ingredient, the user must be able to enter only one unit of measure and then move to the next ingredient without entering a second unit of measure. The user must be able to enter values as decimals or fractions.

The user must be able to select from the required units of measure, including volume where applicable, for each ingredient. For all ingredients, the user must be able to select gram, ounce, pound, and, optionally, kilogram. For ingredients with a volume conversion, the user must be able to select teaspoon, tablespoon, cup, pint, quart, and gallon. Fluid ounce must only be provided as a choice if it is provided in the Weights table of the Child Nutrition Database (CN-D) or added by the user (or developer) for appropriate ingredients. "Each-type" units of measure, such as "slice" or "serving" must also be provided if in the Weights table or added by the user.

The ingredient sequence number must automatically be created by the software.

The user must be able to enter the serving size of a recipe portion.

> *The user must be able to enter the serving unit of measure related to the recipe yield.* For example, the recipe yield might be expressed as cups, servings, gallons, sandwiches, ounces, portions, pieces, pounds, and so forth.
>
> *The user must be able to specify the size of a serving (such as, ½, 1-1/2, 2, and so forth).* The amount should modify the serving unit of measure to create a complete serving description, such as ½ tortilla, 1-1/2 cups, or 2 slices, and so forth. The user must be able to enter values as decimals or fractions.
>
> *The user must be able to adjust the serving size, as needed, if a different serving size is served to some age or grade groups.* This may be done at the recipe level or the menu planning level.

The user must be able to enter a moisture or fat change (gain or loss) factor, if applicable. For some purchased food products, a moisture or fat change percentage must be applied to the weight of the recipes for these products to determine the "as consumed" nutrient composition of the recipe. Some products may have both a moisture and fat change. Data are expressed as percentages of change in total recipe weight due to moisture or fat gains or losses as a result of

cooking. Currently, this application is used most frequently in school food service with pre-prepared foods that are fried, for example, frozen pre-cooked chicken nuggets which are fried before serving.

The user must be able to select the type of fat that was used in preparation. This fat must be used to calculate the fat change. The user must be able to select any of the fats or oils listed in the CN-D to use as the type of fat gained or lost during cooking.

Refer to the guidance document *Moisture and Fat Changes in Recipes* (See Appendix B) for more information.

The software must calculate the nutrient analysis of each recipe for calories, saturated fat, and sodium.

The software must calculate the nutrient analysis of each recipe by adding the nutrient amounts contributed by each ingredient. The nutrients per serving are calculated by dividing the total nutrient values from all ingredients in the recipe by the number of servings.

The nutrient analysis of each recipe must be based on the "as consumed" product using the Yield Factor Method or similar means to account for changes in nutrient content during preparation. Users must be instructed to enter recipes correctly to obtain a nutrient analysis that accounts for changes during preparation. Changes in nutrient content and yield must be included in the nutrient analysis calculations. For example, a recipe that calls for raw macaroni, raw beef and raw vegetables will have a very different nutrient analysis if raw ingredients and amounts are used instead of cooked ingredients. Cooked nutrient analyses and amounts must be used for all ingredients that change significantly during cooking to obtain an analysis based on the "as consumed" product. Users will need to be instructed to enter recipes correctly to obtain a nutrient analysis that accounts for changes during preparation. For more information about the nutrient analysis of recipes, refer to Appendix B

The user must be able to review the nutrient information for each recipe in the software program's database. The software program must allow the user to review the nutrient values on a "per serving" basis.

The user must be able to save the nutrient analysis of the recipes. The software program must display the nutrient analysis of the recipe on a "per recipe" or "per serving basis" and correctly calculate the nutrient analysis of multiple or fractional serving sizes of the recipe, such as 3 cups or ½ slice).

OPTIONAL - The user may have the ability to enter a "Provides" statement for the food-based contributions, such as "provides 2 ounces meat/meat alternate and 2

grains servings", if desired. The software must not calculate the credit information for the meal pattern for a given recipe or food product.

OPTIONAL - The user may be able to list recipes that contain a certain ingredient, e.g., certain foods from the United States Department of Agriculture (USDA) Foods Distribution Program (USDA Foods; formerly commodity foods). For example, flag recipes which use USDA ground turkey.

Additional recommendations:

Allow the user to enter the same ingredient more than once in a recipe. Many times a recipe will call for the same ingredient more than once in the recipe. By allowing the user to add the ingredient twice, it is easier for the staff preparing the recipe to follow the recipe and easier to calculate the nutrient analysis based upon an "as consumed" product.

Allow the user to enter or note additional information about the serving in the same or separate field, if the serving size field is not long enough. This allows the user to enter additional descriptive information regarding the serving, such as a scoop or ladle size or dimensions of a piece. This information will be descriptive of the type of serving used to yield the recipe, for example, #16 scoop or 2" X 2" pieces.

Allow the user to enter amounts for ingredients as fractions, instead of decimals. Since fractions are more commonly used in food service, such as 1-1/2 cups instead of 1.5 cups, the user should be able to enter fractions when entering ingredients. The user must be able to enter a decimal or fraction.

Edit the Recipes in the Local Database

The user must be able to modify (edit) existing user-added recipes in the program's database. The user must be able to save edited recipes under the same recipe number or rename and save them under a new recipe name and number. The user should have the option to save an edited recipe as a new recipe, either by copying the recipe to a new recipe before editing or saving an edited recipe with a new name and number.

The user must be able to add an ingredient with the appropriate amounts and measures.

The user must be able to modify the sequence in which the ingredients of a recipe appear.

The user must be able to change or edit the amount of one or more ingredients, using the amount and measure field.

The user must be able to delete an ingredient.

The user must be able to edit the serving information for the recipe, including the yield (number of servings) and serving size (description and amount).

The user must be able to search the food item database and replace an existing ingredient with a new ingredient. The user may need to replace recipe ingredients, such as when food items are removed from the CN-D or alternate ingredients are used (such as using blueberries instead of strawberries) or alternate ingredients are used.

The user must be able to add, change, or delete moisture and fat change factors.

The user must be able to change the type of fat used in a recipe.

The software must be able to re-calculate nutrient totals for recipes.

> *The software must be able to re-calculate nutrient totals for all recipes at one time* (for example, when the program is updated to the next CN-D release).

Search for Recipes in the Local Database

The user must be able to obtain a list of previously created recipes by searching by recipe number or recipe name.

Additional Recommendations:

> Allow the user to search for recipes by food categories. These categories may be developer-created, user-created, USDA categories from the CN-D, or modified USDA categories.

Recipe Report

The software must create a Recipe Report for use by food service staff. The Recipe Report must be in a format suitable for food service staff to use for production. The format for food service should be similar to a recipe card.

The Recipe Report must include the following components:

(1) recipe number
(2) recipe name
(3) portion size
(4) yield of recipe (number of servings)
(5) ingredients and amount of each ingredient in appropriate units for food service (fractions must be used)
(6) preparation instructions

(7) nutrient analysis of the recipe per serving (calories, saturated fat, and sodium required)

Fractions must be shown for the ingredient amounts on the Recipe Report.

Ingredients and amounts must be displayed as a production (or cook's) recipe with the raw ingredients before preparation or cooking.

The Recipe Report must include the nutrient analysis for the required nutrients. The following required nutrients must be included for all nutrient analyses: calories, saturated fat, and sodium. For recipes the percent of calories from saturated fat must also be shown. Additional nutrients may be shown, such as the optional nutrients included in the CN-D.

The nutrient analysis of each recipe must be based on the "as consumed" product using the Yield Factor Method or similar means to account for changes in nutrient content during preparation. Refer to Create Recipes in the Production Recipes section of this document for more information about the Yield Factor Method of recipe entry

Calories, saturated fat, and sodium, the nutrients required by the Final Rule, must be shown to the user in a separate section or report. Both the amount (in grams) and percent of calories from saturated fat must be included on this report. Nutrients not required must be separated from the optional nutrients or provided in a separate report. Nutrients not included in the CN-D must be separated from the CN-D nutrients or marked with a code to indicate that it these nutrients are not from the CN-D. (See Enter Food Items into the Local Database in the Create, Update, and Save Food Items in the Local Database section of this document.)

Nutrient totals that include missing nutrient data must be marked. Any nutrient totals that include missing data for one or more nutrients must be marked as including missing nutrient data. (See Nutrient Data in the CN-D in the Child Nutrition Database section of this document.)

The convention or coding system used to show missing nutrient data must be defined in a key or legend.

The user must be able to search by recipe name and ID number to select recipes to include on the Recipe Report.

The user must be able to create a Recipe Report for all recipes, if desired. The user must be able to create a set of all recipes, if desired, by selecting different ranges of descriptions or ID#s. The software developer may allow the user to select "all" to create one large set of all the recipes.

The user must be able to display and print the Recipe Report.

Additional Recommendations:

Allow the user to select search for recipes to include on reports by searching by recipe category.

Allow the user to search for recipes using description (or keyword).

Provide an additional report that includes all of the nutrients provided in the CN Database or as selected by the user from CN Database or locally-added nutrients.

Recipe Nutrient Composition Report

The software must create a Recipe Nutrient Composition Report which summarizes the detailed nutrient content of the recipe.

The Recipe Nutrient Composition Report must include the nutrient analysis of each ingredient.

The Recipe Nutrient Composition Report must include the total nutrient analysis of the recipe.

The Recipe Nutrient Composition Report must include the "per serving" nutrient analysis of the recipe.

The nutrient analysis of each recipe must be based on the "as consumed" product using the Yield Factor Method or similar means to account for changes in nutrient content during preparation. Refer to Create Recipes in the Production Recipes section of this document for more information about the Yield Factor Method of recipe entry.

The Recipe Nutrient Composition Report must include the required nutrients. The following required nutrients must be included for all nutrient analyses: calories, saturated fat, and sodium. Saturated fat must be shown as both grams and the percent of calories from saturated fat.

The required nutrients must be shown to the user in a separate section or report. The required nutrients must be separated from the optional nutrients or provided in a separate report. Nutrients not included in the CN-D must be separated from the CN-D nutrients or marked with a code to indicate that it these nutrients are not from the CN-D. (See Enter Food Items into the Local Database in the Create, Update, and Save Food Items in the Local Database section of this document.)

Nutrient totals that include missing nutrient data must be marked. Any nutrient totals that include missing data for one or more nutrients must be marked as including missing nutrient data. (See Nutrient Data in the CN-D in the Child Nutrition Database section of this document.)

The convention or coding system used to show missing nutrient data must be defined in a key or legend.

The user must be able to search by recipe name and ID number to select recipes to include on the Recipe Nutrient Composition Report

The user must be able to create a Recipe Nutrient Composition Report for all recipes, if desired. The user must be able to create a set of all recipes, if desired, by selecting different ranges of descriptions or ID#s. The software developer may allow the user to select "all" to create one large set of all the recipes.

The user must be able to display or print the Recipe Nutrient Composition Report.

Additional recommendations:

Provide an additional report that includes all of the nutrients provided in the CN Database or as selected by the user from CN Database or locally-added nutrients.

Allow the user to select search for recipes to include on reports by searching by recipe category.

Allow the user to search for recipes using description (or keyword).

Adjust the Yield of a Recipe

The software must be able to adjust the quantities of each ingredient to the amount required to produce a user specified number of servings of the recipe. Since this report would be the recipe used in food preparation, it should be in a recipe format and use terms easily understood by food service personnel.

Fractions must be used, not decimals.

The yield-adjusted amounts must be shown with each recipe ingredient.

The original recipe must be maintained as the basis for future adjustments. All yield adjustments should be made without changing the ingredient amounts or number of servings in the original recipe.

The user must be able to print the yield-adjusted recipe in a recipe format suitable for food service staff to use for production. Recipes should be entered as

"production recipes" with raw ingredients and amounts for production staff to use during food preparation. For example, a recipe for meat sauce that uses raw ground beef, that is then cooked, should list the raw ground beef with the ingredient amount. Ingredients that have been replaced with "as consumed" or cooked ingredients or amounts for the nutrient analysis should not be shown on this report. The format for food service should be similar to a recipe card.

Voluntarily Added USDA Production Recipes

Inclusion of the *USDA Recipes for Schools* (referred to in this document as the USDA production recipes), developed by USDA for use by schools participating in the Child Nutrition Programs, as production recipes is not required. If these production recipes are added to the software by the developer, they will be checked. Instructions for the inclusion of the USDA production recipes are included in under USDA Recipes in the Optional Functions section of this document.

Frequently Asked Questions about the Production Recipes

1) *Why is trans fat not required on the nutrient analysis reports?*

   According to dietary specification (nutrient standard) for *trans* fat in the final rule, the nutrition label or manufacturer's specifications for food products or ingredients must specify zero grams of *trans* fat per serving. *Trans* fat is not required in the State Agency nutrient analysis of the one-week menu in an approved software program.

2) *What is the Yield Factor Method of recipe entry?*

   The Yield Factor Method of recipe entry allows the user to enter ingredients and amounts that reflect the "as consumed" product. This method will account for changes in nutrients and yields that occur during preparation and cooking. If raw ingredients and amounts are used for the nutrient analysis, the nutrient analysis will not be an accurate representation of what is actually eaten or consumed. For example, if a recipe includes raw rice in the ingredient list, but the rice is cooked in the preparation of the recipe, the amount of rice must be adjusted to the cooked or "as consumed" amount. For example, if a recipe calls for 3 cups of raw, long grain, white rice, the nutrient analysis must use 9.75 cups of cooked, long grain, white rice as the cooked yield to calculate the nutrient values. The amount must be adjusted for yield changes during preparation AND the nutrient analysis must be based on the cooked, not raw, rice. Ingredients that typically have significant changes to nutrients and amount during preparation include meats, pasta, rice, and vegetables.

3) *Where can I find more information about calculating the nutrient analysis of recipes as the "as consumed" product?*

   The recipe guidance document, *Guidelines for Including USDA Production Recipes in the Software Programs Approved by USDA for NSMP and SMI* (See Appendix B) provides guidance to software developers about methods that can be used to analyze recipes to obtain an accurate nutrient analysis that reflects changes to nutrients from preparation. Developers may ask the Software Evaluation Coordinator to review their planned methodology for analyzing recipes.

4) *May we require the user to create raw ingredients with yield factors instead of entering cooked ingredients and amounts?*

   Yes. The software developer may use a system of entering yield factors to the ingredients to obtain the "as consumed" (or cooked) nutrient analysis of a recipe. Developers must instruct the user as to the correct way to assign yield factors to the ingredients. It must be clear to the user which ingredients or units of measure have yield factors applied to them and whether the nutrient analysis is for the raw or cooked ingredient.

5) *Do we have to allow the user to print all the recipes at one time?*

   Some software developers have expressed concern about the quantity of data being generated when the user selects "all" for recipes, food items, or the entire CN Database. The program does not have to allow the user to select "all" for reports for any of the software programs' databases. However, the user must be able to display or print, if desired, a complete set of data. This can be done by selecting smaller subsets of data, such as by category or a range of the alphabet. The user may also restrict the data to the working database or subset of data used by a user.

Measure Conversions

The software must automatically convert weight and volume data to standard units of measure for the user. For entry of ingredients in recipes or on menus, the software must provide the user with more than the measure-to-gram weight conversions contained on the food label or in the Weights table of the Child Nutrition Database (CN-D). The software program must calculate the universal conversions from one weight to any other weight (e.g. 100 g to lb) and from one volume measure to any other volume (e.g. cup to gallon). These are universal conversions that can be easily calculated using standard conversion factors. Conversion tables are available from many sources, including most cookbooks.

The software must convert weight data to standard weight units of measure for the user. All ingredients should automatically be available in all standard weights:

pound (lb)
ounce (oz)
gram (g)
kilogram (kg) [optional]

Since the CN-D provides nutrient values on a weight basis (per 100 gram of the food item, the nutrients can be easily calculated for any other weight. If fractional or multiple weight units of measure are provided, such as "3 ounces" or "1/2 pound", the standard weight conversions must also be made available.

The software must convert volume data to standard volume units of measure for the user. If the weight of any volume measure is available (through the CN-D Weights table or by user entry), the following volume measures must be available to the user:

teaspoon (tsp)
tablespoon (tbsp)
cup (c)
pint (pt)
quart (qt)
gallon (gal)

If any volume measure is given in the Weights table, the gram weights of any standard volume measure can be easily calculated, and the nutrients for any volume can be determined. If fractional or multiple volume units of measure are provided, such as "1/2 cup" or "2 tablespoons", the volume conversions must also be made available.

The software must provide additional units of measure for the user, if included in the Weights table or provided by the user. If data on additional measures, such as "each-type" units of measure ("piece", "slice", "portion", and so forth), is provided in the Weights table or by the user, this data must also be available to the user.

The software must not globally convert to the fluid ounce unit of measure for all food items. Although it would be mathematically correct, because fluid ounce is typically used for liquids, it would look awkward for non-liquid foods like flour, salt, sugar, and so forth. Mixing the use of ounces (weight) and fluid ounces (volume) can be confusing to food service staff and result in errors in measurement. Therefore, it is required that there are *no* global conversions to fluid ounce by the software program. It is acceptable for fluid ounce, typically used for liquids, to be included only if a fluid ounce entry is provided in the Weights table. The software developer or user may also add this data, if appropriate for the food item, but a global conversion to fluid ounce for all food items is not permitted.

Parenthetical information that becomes inaccurate when the unit of measure is converted to other units of measure must be removed. Some units of measure in the CN-D contain parenthetical (or auxiliary) information, which is extra information in parenthesis that describes the unit of measure. This includes dimensions for piece-type units of measure or conversions to the prepared amount. In some cases,

especially with volume units of measure, this information becomes inaccurate when the unit of measure is converted to another unit of measure. For example, “cup (yields 2 cups whipped)” becomes inaccurate when converted to “gallon”, as the “gallon” no longer yields 2 cups whipped. Because this is an issue with the data in the CN-D, software developers may remove all information in parenthesis that follows a unit of measure in the Measure Description (Measure_desc) field in the Weights file. Because useful information about “each-type” units of measure, such as dimensions or package size, will be lost if all parenthetical information is removed, recommend only removing the parenthetical information for specific measures (or groups of measures) for which this information becomes incorrect when conversions are made.

Units of measure from the Weights table must be tagged as USDA. The user must be able to determine which units of measure were provided by the United States Department of Agriculture (USDA) in the Weights table of the CN-D. The developer must have a way of listing or marking the Weights table units of measure so it is clear to the user that these units of measure were provided by the CN-D. The developer may use a code, symbol, abbreviation, or grouping system to tag the units of measure. The developer may also mark other sources of measurement data, such as developer-added or user-added, but it is not required.

All required universal conversions must be tagged as developer-added. For example, if “cup” is provided in the Weights file and the software program converts to teaspoon, tablespoon, pint, quart, and gallon, then “cup” must be tagged as a Weights table unit of measure and the others must appear as developer-added units of measure.

> *Any conversions to whole units of measure from a fractional or multiple unit of measure must also be tagged as developer-added.* For example, if “1/2 cup” is provided in the Weights table and the developer creates a “1 cup” unit of measure from this ½ cup, only the ½ cup unit of measure may be tagged as “USDA”.
>
> *It must be clear that any global conversions (conversions for all ingredients) to additional units of measure provided by the software developer are not provided by USDA*. For example, if the developer chooses to provide conversions to can sizes or scoop sizes, it must be clear that these were not provided by USDA.

The software must convert nutrient data internally for use in nutrient analysis reports and displays for food items, recipes, and menus. The developer may determine the units upon which the nutrient data is displayed, except where instructed otherwise in this specifications document.

The software developer must convert to other units of measure using the following equation:

a/b = x/y

where a = nutrient amount per original serving
b = weight of original serving size
x = nutrient amount per new serving size
y = weight of new serving size

Example of Converting Nutrient Data from Nutrients per Serving to Nutrients per Other Units of Measure:

Using the food label below, convert the nutrients per one cup serving to nutrients per quart.

Nutrition Facts

Serving Size: 1 cup (228 g)
Servings per Container: 2

Amount per Serving:

Water	40 g
Calories	260 calories
Protein	5 g
Total Fat	13 g
Saturated Fat	5 g
Trans Fat	1 g
Carbohydrate	31 g
Dietary Fiber	3 g
Ash	10 g
Cholesterol	30 mg
Sodium	660 mg
Calcium	15%
Iron	4%
Vitamin C	2%
Vitamin A	4%

1 cup = 228 grams

4 cups = 1 quart, so 1 quart = 912 grams (228 X 4)

WATER	40 g/228 g = x/912 g	= 160 g Water/912 g
CALORIES	260/228 g = x/912 g	= 1040 Calories/912 g

PROTEIN	5 g/228 g = x/912 g	= 20 g Protein/912 g
TOTAL FAT	13 g/228 g = x/912 g	= 52 g Total Fat/912 g
SATURATED FAT	5 g/228 g = x/912 g	= 20 g Saturated Fat/912 g
TRANS FAT	1 g/228 g = x/912 g	= 4 g *trans* Fat/912 g
CARBOHYDRATE	31 g/228 g = x/912 g	= 124 g Carbohydrate/912 g
FIBER	3 g/228 g = x/912 g	= 12 g Fiber/912 g
ASH	10 g/228 g = x/912 g	= 40 g Ash/912 g
CHOLESTEROL	30 mg/228 g = x/912 g	= 120 mg Cholesterol/912 g
SODIUM	660 mg/228 g = x/912 g	= 2640 mg Sodium/912 g
CALCIUM	150 mg/228 g = X/912 g	= 600 mg Calcium/912 g
IRON	72 mg/228 g = x/912 g	= 228 mg Iron/912 g
VITAMIN C	52 mg/228 g = x/912 g	= 208 mg/912 g
VITAMIN A	200 IU/228 g = x/912 g	= 800 IU/912 g

Additional recommendations:

It is recommended that the software also not automatically convert to the liter and milliliter units of measure for non-liquid ingredients. These are typically used for liquid ingredients in Canada and European countries.

Show the parenthetical (or auxiliary) information as a reference for the user. Because this parenthetical information includes valuable information about the unit of measure, it is recommended that the full measure description be included with the original unit of measure as a reference for the user. This can be included in a separate section or link instead of with the complete list of available units of measure. It does not need to be shown with the converted units of measure.

Frequently Asked Questions Related to the Measure Conversions

1) *Do we need to have an abbreviation or code for the source of all units of measure provided?*

   No. The user must be able to determine which units of measure were provided in the Weights table of the CN-D. If the program simply marks the Weights table units of measure or provides them in a separate, labeled section, the requirement is met. The software may tag other units of measure to allow the user to identify the source, but it is not required.

2) *Do we need to mark the source of the unit of measure in more than one place?*

   Yes. The user needs to be able to determine the source of the units of measure at the recipe level and menu level, if the user can add food items directly to a menu. When creating or editing a recipe, the user must be able to view the source of the unit of measure. It is acceptable to require the user to click a link or open a window to view the source of the units of measure. For example, the software program may require the user to click on a link back to the food item information. The user must not be required to exit the recipe or menu functions and open a new function to view this information.

3) *What do you mean by "global" conversions?*

   This refers to any conversions to units of measure that are made for all food items. This includes the required conversions. Some software developers have also chosen to convert to additional units of measure for all food items. This is acceptable as long as it is clear that these units of measure were not provided by USDA. The conversions must also be correct and appropriate

4) *Do we need to make conversions for all of the units of measure provide for a food item in the Weights file of the CN-D?*

   Many food items in the CN-D have more than one volume measure provided in the Weights table. For example, there may be a tablespoon and a cup measure listed. Also, there may be multiples of the same unit of measure with different preparation methods, such as "cup, sliced" and "cup, mashed". The developer is only required to convert to the required units of measure for one of the volume measures. The developer should only convert from one unit of measure, if there is no extra descriptive information, such as cup and tablespoon, or the descriptive information is the same, such as "cup, mashed" and "tablespoon, mashed". However, it is recommended that the software developer convert for all units of measure that have a different preparation description, such as "cup, sliced" and "cup, mashed", so the user has more flexibility when choosing ingredients for recipes and menus.

5) *If there is more than one unit of measure with the same or no preparation method, such as tablespoon and cup, which one do we use for the conversions?*

   For some CN-D food items there is more than one unit of measure in the Weights table with no extra information, such as "cup" and "tablespoon" or with the same preparation information, such as "cup, mashed" and "tablespoon, mashed". The gram weights for the volume measures may not be the same for both measures. For example, if cup = 120 grams and tablespoon = 8 grams are both present, using the 1 tablespoon would yield a cup weight of 128 grams. Because weight data is obtained from multiple sources, such as actual weight, label data, and so forth, there may be different gram weights for the same unit of measure. In this case, it is recommended that the software developer use the "cup" measure, when available, as the basis for conversions.

6) *Are there any volume units of measure for which we do not have to make conversions?*

   Generally, if a volume measure is presented as an "each-type" measure, such as "portion ½ cup" or "serving cup", the developer does not have to make the required conversions for the unit of measure. It may be treated as an "each-type" measure, such as "slice" or "piece". Software developers are encouraged to contact the Software Evaluation Coordinator for guidance with handling units of measure that do not meet the standard format used in the CN-D.

7) *May we allow global conversions to liter and milliliter if we have international users who use the metric system?*

   Yes. It is recommended that the software does <u>not</u> globally convert to liter and milliliter because these are not typically used in the United States. However, software developers who sell the same program to international users may include the global conversions to liter and milliliter for liquid ingredients.

Creation of Menus

The software must allow the user to create cycle or calendar menus for meals, including breakfast, lunch, snacks, dinner (supper), and special meals, for user-specified sites. Although there are no nutrient standards for snacks or dinner meals, the ability to plan the menus using the software program for production reasons would be desirable.

The software must allow the user to create sites for the different groups served, such as different schools, different grades, or whatever groups the school uses to organize their food service system.

The software must allow the user to enter the meals <u>offered</u> to the students.

Additional Recommendations:

Allow the user to add special groups, such as child care programs, senior citizens, and other groups, that may be unique to a specific school.

Menu Fields

For each menu, the user must be able to enter the following fields:
location/site,
meal (breakfast, lunch, snack),
age/grade group served,
feeding figure (total count or number served), and
nutrient standard (dietary specification) for age/grade group and meal, such as Lunch K - 5

These fields may be include in different functions or places in the software program related to the menus. For example, the developer may have the user set up menus that can be assigned to specific site or age/grade group later in the menu planning process.

For each menu, the user must be able to enter either a cycle name/number, week, and cycle day OR a calendar day (Sunday to Saturday) and calendar date.
Programs may offer both cycle and calendar menus or have a system of creating menus that are later assigned to calendar dates.

The user must be able to create menus for weekends, i.e. Saturday and Sunday, if desired.

Additional Recommendations:

Provide fields that allow the user to enter both reimbursable and a la carte/adult counts for the number of servings of menu items and feeding figure (number of students served).

Create Menus

The user must be able to create menus by entering menu items (from the software program's food item or recipe database) with the offered serving size and amount.

The user must be able to enter the feeding figure (or count) for the menu and the offered number of servings for each menu item.

If the user can create menus using both cycle menu and calendar menu functions, the same functionality must be available for editing menu and copying menus.

The user must be able to assign the menus to a calendar. This may be done when the menu is created or later in the menu planning process.

Additional Recommendations:

Allow the user to enter a "menu name" that is shorter than the full recipe or food item name and more suitable for a calendar menu to be posted or sent home with students.

Edit Menus

The user must be able to edit (make changes) to the menus.

The user must be able to adjust the serving size for each age or grade group. This may be done at the recipe level or the menu planning level.

The user must be able to re-order menu items.

The user must be able to delete menu items that are no longer desired.

Additional Recommendations:

Apply edits forward to cycle or calendar menus that include the edited meal or menu. If a menu is edited, the edits should be applied to any menu ranges, cycles, or calendar menus that include the edited menu. The user may be given a choice to apply or not apply the edits. If the edits are not applied forward, the user should be alerted.

Copy Menus

The user must be able to copy menus from one day or date to another day or date.

The user must be able to copy menus and assign them to a different site or nutrient standard (dietary specification). For example, the user must be able to copy menus created to high school and assign them to middle school OR the user must be able to take menus assigned to the nutrient standard for grades K - 5, copy them, and assign them to the nutrient standard for grades 6 - 8.

The user must be able to copy a range of menus, such as a range of days in a cycle or a range of dates.

The user must be able to change the serving size, number of servings, and feeding figure on the copied menus.

Frequently Asked Questions Related to Creation of Menus

1) *What is the difference between an offered vs. a planned menu?*

   The offered menu includes the items and amounts prepared and served to students on a given day. A planned menu is the menu planned in advance based on forecasting and may not be the menu that is actually prepared and served.

2) *Do all menu fields need to be available in the function where the menu is created?*

   No. The user may create menus that are later assigned to dates, sites, or age/grade groups. The user may create cycles that are later assigned to calendars. The user may assign the nutrient standard when the nutrient analysis is calculated.

3) *May we include the food-based meal pattern contributions*?

   The software may allow the user to add the food-based meal pattern contributions or carry forward to the menu the meal pattern contributions entered for recipes or ingredient. However, the software may not calculate the contribution of any menu item. Food-based functionality is not required for the approved software and is not evaluated. More information about the optional functionality for food-based meal pattern can be found in the Optional Functions section of this document. .

Menu Reports

The software must create a menu report listing the menu items offered. This report must include the serving size, offered number of servings, and feeding figure (count).

The user must be able to specify the report by site or school, age/grade, meal, cycle, or day/date range.

Missing Menu Items

The software must identify menu items or prevent the user from adding menu items which are not included in the software's database. The software program must:

Show an error message if the user tries to add a menu item that is not in the software program's food item or recipe database, OR
Prevent the user from adding any items to menus that are not in the software program's food item or recipe database, OR

Create an exception report that lists all items added to menus that are not in the software program's food item or recipe database.

Additional Recommendations:

Alert the user if food items with no nutrient data are added to the program's food item database or to a recipe as an ingredient.

Frequently Asked Questions Related to Missing Menu Items

1. *How do I mark missing nutrient data for food items or recipes added to menus that do not have nutrient data?*

   If the software allows the user to enter food items into the database that do not have nutrient data and allows the user to add these food items to menus (or allows the user to add foods not in the food item or recipe database to a menu), the program must mark the nutrient analysis to indicate that nutrient data is missing. If the nutrient data is missing for all nutrients for a menu item, the program must mark all the nutrients for that menu item and the nutrient totals for that menu as including missing data. The nutrient data must be marked on all displays and reports. Zeros may not be used to indicate missing nutrient data.

Nutrient Standards

The Final Rule: Nutrition Standards in the National School Lunch and School Breakfast Programs (1/26/12) provides the nutrient standards which must be incorporated into the approved software. Nutrient standards, or dietary specifications, are set for calories, saturated fat, sodium and *trans* fat.

Schools are required to offer menus that meet the nutrient standards for calories, saturated fat, sodium, and *trans* fat. The dietary specification for calories is now a range. The amount of calories provided by the menu must fall within the range. The dietary specification for saturated fat has not changed. It remains less than 10% of calories. The sodium dietary specifications will be phased in at three different intervals; gradually lowering the amount of sodium allowed in the school meals. For *trans* fat the nutrition label or manufacturer specifications must indicate zero grams of trans fat per serving.

School breakfasts and lunches are required to meet the respective nutrient standards for each age/grade group served when the offered menu's nutrient values are averaged over a week's time. The nutrient standards for breakfast and lunch must not be averaged together.

Nutrient standards have not been established for snacks or dinner (supper) meals.

Dietary Specifications (Age/ Grade Groups) for Breakfast & Lunch

The software must include the dietary specifications for breakfast and lunch for the specified age/grade groups as provided in the Final Rule: Nutrition Standards in the National School Lunch and School Breakfast Programs (7 CFR 210 & 220; 1/26/12).

The software must include the specifications for calories, saturated fat, and sodium. The required specifications are shown in Table 1 below.

The sodium specification must be the correct specification for the current school year. The dietary specification for sodium is based on a final target with two intermediate targets. The software must compare the total sodium to the correct target for the current school year. The software may use Target 1 for SY 2012-2013 and 2013 -2014. See Table 2 below.

If Target 1 for sodium is used as the nutrient standard for sodium during SY 2012 - 2013 and 2013 – 2014, the software must:

1) Add a note or disclaimer stating that this target is effective with SY 2014 – 2015 OR
2) Show the total sodium, but no comparison to a standard until SY 2014 – 2015.

Table 1. Other Specifications: Daily Amount Based on the Average for a 5-Day Week

	Breakfast			Lunch		
Grades	K-5	6-8	9-12	K-5	6-8	9-12
Min-max calories (kcal)	350-500	400-550	450-600	550-650	600-700	750-850
Saturated fat (% of total calories)	< 10	< 10	< 10	< 10	< 10	< 10
Sodium (mg)*	≤ 430	≤ 470	≤ 500	≤ 640	≤ 710	≤ 740
***Trans* fat**	Nutrition label or manufacturer specifications must indicate zero grams of *trans* fat pe serving.					

*Final target is show here. Software must include the correct sodium targets (specifications) for the intermediate targets for the current school year(s). See Table 2 for the intermediate targets.

Table 2. Sodium Reduction: Timeline & Amount				
Age/ Grade Group	**Baseline Current Average Sodium Levels As Offered (mg)**	**Target 1: Meet by July 1, 2014 (SY 2014-15) (mg)**	**Target 2: SY 2017-18 (mg)**	**Final Target: SY 2022-23 (mg)**
School Breakfast Program				
K-5	573 (elementary)	≤ 540	≤ 485	≤ 430
6-8	629 (middle)	≤ 600	≤ 535	≤ 470
9-12	686 (high)	≤ 640	≤ 570	≤ 500
National School Lunch Program				
K-5	1,377 (elementary)	< 1,230	< 935	< 640
6-8	1,520 (middle)	< 1,360	< 1,035	< 710
9-12	1,588 (high)	< 1,420	< 1,080	< 740

Note: Target 1 may be used as the nutrient standard for SY 2012 - 2013 and 2013 – 2014.

Software currently approved for NSMP must continue to provide the nutrient standards for NSMP for breakfast. The NSMP breakfast standards must remain in the software through June 30, 2013.

The software must include the current nutrient standards for lunch for preschool.

Nutrient Standards for Lunch – By Age

Nutrients Ages 3-4 (Preschool)

CALORIES	517
PROTEIN (g)	7
IRON (mg)	3.3
CALCIUM (mg)	267
VITAMIN A (RE)	150
VITAMIN C (mg)	14
FAT (g)[1]	
SATURATED FAT (g)[2]	

[1] Not to exceed 30 percent over a school week.
[2] Less than 10 percent over a school week.

Additional Recommendations:

Allow the user to enter standards for nutrients that do not have a corresponding USDA nutrient standard, such as cholesterol and fiber. Since some states have set nutrient standards for nutrients for which there is no standard required by USDA, the user should be able to add these standards to the software program. The software may allow the user to add these standards to the USDA provided standard or copy and edit the USDA standard to include the state's nutrient standards. If the user is allowed to add these standards in addition to the USDA standards, it must be clear that this standard is not required by USDA. The field or standard can be marked with a code or symbol that is defined in a key OR these user-added standards can be provided in a separate section that is clearly marked as including standards not provided nor required by USDA.

Combined Age/Grade Groups

The software program must allow for the combination of age/grade groups K-5 and 6-8 to create a K-8 age group. The meals offered to these students must consist of 600-650 calories to meet the dietary specification for both groups. Furthermore, the sodium content of these meals must meet the sodium specification for the youngest group: K-5.

Nutrient Standards for the K-8 age group:

Lunch:

Calories = 600-650 calories

Saturated fat < 10% of calories

Sodium: Target 1 (SY 2014-2015) ≤1230mg

Target 2 (SY2017–2018) ≤935mg

Target 3 (SY2022-2023) ≤640mg

Breakfast:

Calories = 400-500 calories

Saturated fat < 10% of calories

Sodium: Target 1 (SY 2014-2015) ≤540mg

Target 2 (SY2017–2018) ≤485mg

Target 3 (SY2022-2023) ≤430mg

Editing Nutrient Standards

The user must not be able to edit the nutrient standards provided by USDA. The user must not be able to change the values for the nutrient standards provided by USDA.

Deletion of Nutrient Standards

The user must not be able to delete or remove the USDA provided standards from the software program. The required nutrient standards provided by USDA for age/grade groups must remain in the software and may not be deleted by the user or software developer.

The user must be able to remove or delete any user-added nutrient standards. If the user adds nutrient standards that are not provided by USDA (e.g., for nutrients not monitored by USDA), the user must be able to delete these nutrient standards.

Nutrient Standard Report

The Nutrient Standard Report must summarize the nutrient standards for each age/grade group for breakfast and lunch.

The Nutrient Standard Report must allow the option to include any nutrient standards added by the user.

The user must be able to specify the nutrient standards to be included on the nutrient standard report, including multiple nutrient standards or all the nutrient standards, if desired.

Frequently Asked Questions Related to the Nutrient Standards

1) *May we add standards required by the State, such as a requirement for cholesterol?*

   Yes. The software program may allow the user to enter nutrient standards for USDA-required nutrients that do not have a nutrient standard. It must be clear to the user that these nutrient standards are not required by USDA.

2) *May we add nutrient standards for nutrients that are not required by USDA, such as vitamin D?*

   Yes. The developer may add or allow the user to add nutrient standards for nutrients not required by USDA, as long these are clearly marked as user-added or not required by USDA. However, we recommend that the developers do not add standards for nutrients not required (or optional) by USDA, even if this nutrient is provided in the program's database. Data will not be complete for nutrients not provided in the CN-D. Providing a nutrient standard for nutrients for which there is incomplete data and comparing the nutrient analysis to this standard when the data is not complete may result in an inappropriate or inaccurate interpretation of the nutrient analysis.

3) *May we add the food-based meal pattern requirements to our software?*

   The required meal pattern contributions from the food groups are not included in the requirements for the approved software. The approved software programs are intended for use with the nutrient analysis of menus for the required nutrient standards, or dietary specifications, for calories, saturated fat, and sodium. While it is not the intent of the approved software to be used to evaluate the requirements for food-based meal pattern contributions, the option for the user to enter meal pattern contributions may be included in the software. Please refer to Food-Based Meal Pattern Requirements in the Optional Functions section of this document for more information about this optional functionality.

Weighted Nutrient Analysis

The Final Rule: Nutrition Standards in the National School Lunch and School Breakfast Programs (7 CFR 210.18; 1/26/12) requires an accurate nutrient analysis during the State Agency Administrative Review. In order to accurately analyze the nutritional composition of meals offered in the National School Lunch Program and School Breakfast Program, the nutritional analysis of the offered menu must be based on weighted averages. When a selective menu is offered (with more than one food choice), some food items are more popular than others; therefore, appropriate weighting should be given to the most popular food item. A menu item which is chosen frequently will contribute more nutrients to the meal than a menu item seldom chosen. Simply averaging all menu items and giving equal weight to each will not result in an accurate nutritional analysis. The calculation method for computing a weighted nutrient analysis will require the school district to enter the menu item, portion size, offered servings of each menu item, and the total feeding figure (projected number of meals that will be offered. at each meal). The weighted nutrient analysis methodology allows for the implementation of Offer-vs.-Serve.

Weighted Nutrient Analysis of Menus

The software must calculate the weighted nutrient analysis of offered menus.

The software program must calculate the average nutrient composition of a menu for one meal, such as lunch, for one day. The methodology for weighted nutrient analysis is shown below.

The software must calculate the average nutrient composition of the multiple menus for one meal, such as lunch, for a user-specified group or range of days, such as a cycle, week, or date range. The methodology for weighted nutrient analysis is shown below.

The software must compute the percent of calories from saturated fat for a meal's menu for one day and for the user-specified group or range of multiple menus, such as one week, for the same meal. The method for calculating the daily and weekly percentages of calories from saturated fat is outlined below:

Menus must be analyzed for calories, saturated fat, and sodium. Saturated fat must be shown as both grams and the percent of calories from saturated fat.

The software must analyze menus for the nutrients required for the age 3-4 nutrient standard for preschool, if desired by the user.

Previously approved software (software approved for NSMP) must also analyze menus for the nutrients required for breakfast for NSMP, if desired, by the user.

All foods offered in the meal must be included in the nutrient analysis of the menus. The offered number of servings and total feeding figure (count) must include all items offered to the students for the meal used in the nutrient analysis.

The software must use the following methodology to calculate the weighted nutrient analysis. The user will enter the menu item, portion size, offered servings of each menu item and the total feeding figure. The software must then calculate the weighted nutrient analysis using the following method.

Calculation Methods for Weighted Nutrient Analysis

Do **not** round daily nutrient values when calculating the weekly average (or average nutrient values for multiple menus). Round nutrient values after calculations are complete.

Calculation Method for Weighted Nutrient Values for Single Menus

1. Multiply the nutrient values for a menu item by the offered number of servings for that menu item to calculate the nutrients provided by that menu item. Repeat for each menu item for the specified meal.

2. Total all the nutrients of the meal. Add the individual nutrient values from each menu item to yield the total nutrient values of the meal for each nutrient (calories, sodium, etc.)

3. Divide the total nutrients for the meal by the total feeding figure (count) to get the weighted nutrient values for that meal.

Calculation Method for the Percent of Calories from the Macronutrients (Protein, Carbohydrate, Total Fat, and Saturated Fat).

The percentage of calories from protein, carbohydrate, total fat, and saturated fat for the meal should be calculated as follows:

1. Identify the total calories and total grams of protein, total fat, saturated fat and carbohydrate from the weighted nutrient values for the meal.

2. Use the following "calories per gram" value for protein, fat, saturated fat, and carbohydrate:

    i. Protein = 4 calories per gram
    ii. Carbohydrate = 4 calories per gram
    iii. Fat = 9 calories per gram
    iv. Saturated Fat = 9 calories per gram

3. Multiply the total grams of protein by four and divide by the total calories. This total equals the percentage of calories from protein.

4. Multiply the total grams of carbohydrate by four and divide by the total calories. This total equals the percentage of calories from carbohydrate.

5. Multiply the total grams of fat by nine and divide by the total calories. This total equals the percentage of calories from fat.

6. Multiply the total grams of saturated fat by nine and divide by the total calories. This total equals the percentage of calories from saturated fat.

Note: The total of the three percentages (protein, carbohydrate, and fat) should approximate but may not equal 100%.

Calculation Method for the Weekly Average (or Average Nutrient Values for Multiple Menus)

1. Complete these calculations for each meal in the group of menus (one week or other range of menus, such as menu cycle or range of dates).

2. Add together the weighted nutrient values for each nutrient for each meal in the group of menus, e.g., day 1, day 2, day 3, day 4, day 5, and so forth.

3. Divide the total nutrient values for each nutrient by the number of days included in the group of menus, such as five days for a Monday through Friday menu, to get the average weighted nutrient analysis for the group of menus.

Calculation Method for Average Percent of Macronutrients for the Week (or Average of Multiple Menus)

1. The percentage of calories from protein, carbohydrate, total fat and saturated fat based on the week (or group of menus) should be calculated as follows:

2. Take the calories and total grams of protein, total fat, carbohydrate and saturated fat from step 7 above (average weighted nutrient analysis for the group of menus).

3. Multiply the total grams of protein by four and divide by the total calories. This total equals the percentage of calories from protein.

4. Multiply the total grams of carbohydrate by four and divide by the total calories. This total equals the percentage of calories from carbohydrate.

5. Multiply the total grams of fat by nine and divide by the total calories. This total equals the percentage of calories from fat.

6. Multiply the total grams of saturated fat by nine and divide by the total calories. This total equals the percentage of calories from saturated fat.

Note: The total of the three percentages (protein, carbohydrate, and fat) should approximate but may not equal 100%."

Menu Weighted Nutrient Analysis Report [single menu analysis]

The software must create a report of the individual menu's weighted nutrient analysis. The Menu Weighted Nutrient Analysis Report summarizes the calculated nutritional value of an individual menu, as offered, and compares it to the selected nutrient standard.

This report must show the:

- total amount of calories, saturated fat, and sodium provided by the menu
- grams and percent of calories for saturated fat,
- nutrient standard for each nutrient for the age/grade group served, and
- discrepancy from standard (the difference between the nutrient standard and the menu's actual nutrient value).

This report may not show the trans fat total for the meal. The software may not show the trans fat total or a comparison to the standard on this report.

Software previously approved for NSMP must continue to include a report that compares the weighted analysis to the NSMP standard for breakfast. Schools may continue use Nutrient Standard Menu Planning (NSMP) for breakfast through June 30, 2013. A nutrient analysis report that compares the weighted analysis to the nutrient standards for NSMP for breakfast must be available in the software through 6/30/2013.

The software must include a report that compares the weighted analysis to the preschool nutrient standard for ages 3-4. The CACFP standards are currently under redevelopment. Until new standards are published, the current Age 3 – 4 nutrient standards must be available to users for preschool. A nutrient analysis report that compares the weighted analysis to the nutrient standard for age 3 -4 for preschool must be available in the software.

The software must mark the meals that do not meet the nutrient standards and specify which nutrients do not meet the standard. The menu's nutrient analysis can be marked by using special marks (such as an asterisk) or highlighting the data on the Menu Weighted Nutrient Analysis Report. The developer may choose to print an additional Exception Report that lists the menus that do not meet the nutrient standard, along with the nutrients that do not meet the standard.

The system for marking meals that do not meet the nutrient standards must be defined in a key or legend on the report and displays where the analysis is shown.

Missing nutrient values, including nutrient totals that include missing values, must be marked on all nutrient analysis reports and displays. Zeros may not be used to indicate missing nutrient values.

The system for marking missing nutrient values must be defined in a key or legend on the report and displays where the analysis is shown.

Multiple Menu Weighted Nutrient Analysis Report [average for a group of menus, such as one week]

The software must create a report of the weighted nutrient analysis for a user-specified group of menus, such as a one-week period. The Multiple Menu Weighted Nutrient Analysis Report summarizes the calculated nutritional value of a group of offered menus and compares it to the selected nutrient standard.

This report must show the:

- average of calories, saturated fat, and sodium provided by the menus,
- grams and percent of calories for saturated fat,
- nutrient standard for the age/grade groups served, and
- discrepancy from standard (the difference between the nutrient standard and the average nutrient value for the group of menus).

This report may not show the trans fat total for the meal. The software may not show the trans fat total or a comparison to the standard on this report.

Software previously approved for NSMP must continue to include a report that compares the weighted analysis to the NSMP standard for breakfast. Schools may continue use Nutrient Standard Menu Planning (NSMP) for breakfast through June 30, 2013. A nutrient analysis report that compares the weighted analysis to the nutrient standards for NSMP for breakfast must be available in the software through 6/30/2013.

The software must include a report that compares the weighted analysis to the preschool nutrient standard for ages 3-4. The CACFP standards are currently under redevelopment. Until new standards are published, the current Age 3 – 4 nutrient standards must be available to users for preschool. A nutrient analysis report that compares the weighted analysis to the nutrient standard for age 3 -4 for preschool must be available in the software.

The software must mark the menus that do not meet the nutrient standards and specify which nutrients do not meet the standard. The menu's analysis can be marked by using special marks (such as an asterisk) near or highlighting the data on the Multiple

Menu Weighted Nutrient Analysis Report. The software developer may choose to print an additional Exception Report that lists the menus or meals that do not meet the nutrient standard, along with the nutrients that do not meet the standard.

The system for marking meals that do not meet the nutrient standards must be defined in a key or legend on the report and displays where the analysis is shown.

Missing nutrient values, including nutrient totals that include missing values, must be marked on all nutrient analysis reports and displays.

The system for marking missing nutrient values must be defined in a key or legend on the report and displays where the analysis is shown.

The software program may combine the Menu Weighted Nutrient Analysis Report and Multiple Menu Weighted Nutrient Analysis Report into one report, as long as the user can view nutrient values for both the individual menus and the average for the group of menus.

Marking Menus That Do Not Meet Nutrient Standards

The software must highlight or mark menus that do not meet the nutrient standard. The menus that do not meet the standard can be marked on the Menu Weighted Nutrient Analysis Report and Multiple Menu Weighted Nutrient Analysis Report OR displayed in a separate Exception Report. It may be sufficient to mark the nutrients that do not meet the standard for each menu's nutrient analysis and the average nutrient analysis for a group of menus.

The software must mark the nutrients that do not meet the nutrient standards for each analysis (individual meal's menu or the average of a group of menus) OR list the nutrients that do not meet the standard on the exception report.

Frequently Asked Questions about the Weighted Nutrient Analysis

1) *Why is trans fat not required on the nutrient analysis reports?*

   According to the dietary specification (nutrient standard) for *trans* fat in the Final Rule, the nutrition label or manufacturer's specifications for food products or ingredients must specify zero grams of *trans* fat per serving. *Trans* fat is not required in the State Agency nutrient analysis of the one-week menu in an approved software program.

2) *Does the software need to show the weighted nutrient analysis of each menu item?*

   No. The software does not have to show the weighted nutrient analysis of each individual menu item. The developer may choose to include this function to help the

user identify foods that are low or high in a nutrient. It also can help the user find errors in the nutrient analysis.

3) *How many decimal places must we show for nutrient values in the weighted nutrient analysis?*

   For the weighted nutrient analyses, the displays and reports must show at least the number of decimal places shown for the nutrient standard for that nutrient. Use the highest number of decimal places shown for the nutrient standard. For example, if one nutrient standard is 15.25 and another is 13.3, round to two decimal places (hundredths). Preferably show no more than three decimal places (thousandths) for any nutrient values since the Child Nutrition Database shows a maximum of three decimal places and requirement for user-entered ingredients is three decimal places.

4) *Is it sufficient to mark the missing value of an ingredient in a recipe or individual menu item?*

   No. The missing value must be carried forward through the software program and marked accordingly. The nutrient analysis for any recipe that includes an ingredient that is missing nutrient data must have totals that include the missing values marked as such. Similarly, any menu that includes menu items that are missing nutrient data must have the totals that include missing values marked accordingly. Because missing data can greatly affect the interpretation of the nutrient analysis, missing values and totals that include them must be marked.

5) *How do I mark missing values for food items that are missing a nutrient analysis?*

   If the software allows users to add food items that are missing their nutrient analyses, the nutrient analyses for these food items must show all nutrients as missing values. The software program's system for marking missing values must be used for all of the nutrients. The analysis for any recipe or menu that includes this food item as an ingredient or menu item must have the totals for all nutrients marked as including missing nutrient data.

6) *Could you provide examples of the weighted analysis calculations?*

These examples calculate the weighted nutrient analysis using the required methodology.

Example Menu: Feeding Figure (total number served) = 600

CND#	Menu Item	Serving Size	Number of Servings
50331	Vegetable Pizza	1 piece	450
50148	Toasted Cheese Sandwich	1 sandwich	150
9003	Apple	1 medium	350
9252	Pear	1 medium	250
1079	Low fat milk	1 cup	400
1085	Non fat milk	1 cup	200

Example of Calculating the Weighted Analysis for a Nutrient Using <u>Saturated Fat</u>:

Menu Item	Saturated Fat/serving	×	Number of servings	=	Total for item
Vegetable Pizza	4.17	×	450	=	1,876.5
Toasted Cheese Sandwich	6.68	×	150	=	1,002.0
Apple	0	×	350	=	0
Pear	0	×	250	=	0
Low fat milk	1.545	×	400	=	618.0
Non fat milk	0.137	×	200	=	27.4
					3,523.9

Total saturated fat for menu = 3,523.9 grams

Divide by feeding figure = 3,523.9 grams ÷ 600 = 5.8731667
Weighted saturated fat total for this menu = 5.8731667or **5.87** grams

Example of Calculating the Weighted Analysis for a Nutrient Using Calories:

Menu Item	Nutrient Value per serving	×	Number of servings	=	Total for item
Vegetable Pizza	264.99	×	450	=	119,245.50
Toasted Cheese Sandwich	228.99	×	150	=	34,348.50
Apple	94.64	×	350	=	33,124.00
Pear	103.24	×	250	=	25,810.00
Low fat milk	122.00	×	400	=	48,800.00
Non fat milk	83.3	×	200	=	16,660.00
					277,988.00

Total calories for menu = 277,988 calories

Divide by feeding figure = 277,988 ÷ 600 = 463.31333

Weighted calorie total for this menu = 463.31333 or **463.313** calories

Example of Calculating Percent of Calories from Saturated Fat

For the calculation of the percent of calories from a macronutrient, the following example uses saturate fat.

The weighted saturated fat total from the example menu is 5.87 grams.

Multiply this gram amount times 9 calories per gram. This is the estimated amount of calories provide per gram of fat (for carbohydrate use 4 kcals/gram and for protein use 4 kcals/gram)

5.87 grams × 9 kcal/gram = 52.83 calories from saturated fat

Divide the calories from saturated fat by the total weighted calories for the menu.

52.83 ÷ 463.313 = .1140266

Multiply times 100.

.1140266 × 100 = 11.40266 or 11.4

The percent of calories from saturated fat = 11.4%

Example of Calculating the Average Weighted Nutrient Value Using Sodium:

The example group of menus includes five menus to be averaged for the nutrient analysis. The weighted sodium values are:

Day 1 = 726.39 milligrams

Day 2 = 988.976 milligrams

Day 3 = 843.673 milligrams

Day 4 = 1041.95 milligrams

Day 5 = 1069.473 milligrams

Add the value for each day: 726.39 + 988.976 + 843.673 + 1041.95 + 1069.473 = 4670.462 milligrams

Divide by the number of menus in the group, in this case five:
4670.462 milligrams ÷ 5 = 934.0924 milligrams

Weighted sodium amount for the range of menus = 934.092 milligrams

Example of Calculating the Average Weighted Nutrient Value using Calories:

The example group of menus includes five menus to be averaged for the nutrient analysis. The weighted calorie values are:

Day 1 = 463.313 calories

Day 2 = 512.345 calories

Day 3 = 425.453 calories

Day 4 = 454.32 calories

Day 5 = 403.65 calories

Add the value for each day:

463.313 + 512.345 + 425.453 + 454.32 + 403.65 = 2259.081 calories

Divide by the number of menus in the group, in this case five: 2259.081 ÷ 5 = 451.8162

Weighted calorie amount for the range of menus = 451.816 calories

Example of Calculating the Average Weighted Percent of Calories from Saturated Fat) for a Group of Menus:

For the calculation of the average percent of calories from a macronutrient, the following example uses saturated fat.

Add the total grams of saturated fat for each menu in the group of menus:
here
5.87 + 9.345 + 7.364 + 7.674 + 7.444 = 37.697 grams

Add the total calories for each menu in the group of menus:

463.313 + 512.345 + 425.453 + 454.32 + 403.65 = 2259.081 calories

Calculate the number of calories contributed by the macronutrient by multiplying the calories per gram of macronutrient times the total calories. In this example, calculate the number of calories contributed by saturated fat by multiplying the grams of saturated fat times nine:

37.697 grams saturated fat × 9 calories per gram = 339.273 calories from saturated fat

Divide the calories provided by the macronutrient (in this example, saturated fat) by the total calories:

339.273 ÷ 2259.081 = .1501819

Multiply times 100 to obtain the percent of calories from saturated fat for the group of menus:

.1501819× 100 = 15.01819%

The percent of calories from saturated fat (average for the group of five menus) = 15.018%

Required Nutrients

The following nutrients are required by the U.S. Department of Agriculture (USDA) and must be included in the approved software on all nutrient analyses reports and displays: saturated fat, sodium, and calories. Additional nutrients, including protein, total fat, and *trans* fat are provided in the Child Nutrition Database (CN-D), but are optional nutrients and are not required to be shown on nutrient analysis reports and displays.

For recipes and menus, the software must calculate the percentage of calories from saturated fat. Reports and displays must show saturated fat as both grams of saturated fat and percent of calories from saturated fat.

A report showing only the required nutrients must be available in the software.

If the developer includes the optional nutrients (all except calories, saturated fat, and sodium) from the CN Database, the user must be able to enter these same optional nutrients or user-added food items. The optional nutrients must be shown in a different nutrient analysis display or report; or a separate section on displays or reports.

Nutrient data not provided by USDA in the CN-D must be marked accordingly.

> *The method of marking nutrients not provided by USDA must be defined in a key or legend*. If the nutrients provided by USDA are not shown in a separate section, they must be marked with a code or symbol. If these nutrients are provided in a separate section, it must be labeled as such to make it clear to the user that these nutrients are provided by USDA.

Additional Recommendations:

> Include the optional nutrients (all except calories, saturated fat, and sodium) from the CN-D, as provided by USDA.

Frequently Asked Questions about the Required Nutrients

1) Do I have to use software to determine the amounts of *trans* fat in our menus?

   No. According to dietary specification (nutrient standard) for *trans* fat in the final rule, the nutrition label or manufacturer's specifications for food products or ingredients must specify zero grams of *trans* fat per serving. *Trans* fat is not required in the State Agency nutrient analysis of the one-week menu in an approved software program. Software may be used for *trans* fat analyses for informational purposes; however, currently, nutrient databases do not have complete data for *trans* fat. As more *trans* fat information becomes available, it will be included in the CN-D . Some processed foods containing negligible amounts may meet the zero gram requirement because of the FDA labeling standard for rounding amounts for foods containing less than 0.5 grams down to zero. Naturally occurring *trans* fat, found in food items, such as red meat, is not included in this requirement.

2) *May we include sugars as a nutrient?*

   USDA recommends that software developers do not include sugars in the software at this time because sugars are not included in the CN-D. While sugars are included on the food label, this value includes both natural and added sugars.

Technical Support and Help

Basic technical support and help must be available to the user. This can be accomplished through the use of help options within the program, help available on a developer's Web site, video, manuals, or other help that is immediately available to the user.

The help provided to the user must reflect accurate information about the requirements of the Final Rule, such as the dietary specifications, the Software Evaluation Project, and approved software. User manuals, training programs, and other support methods must support the programs, but not try to interpret policy from the U.S. Department of Agriculture's Food and Nutrition Service.

Additional Recommendations:

Use the materials and resources listed in Appendix B of this document as support materials when developing technical support for the approved software. Refer your users to these materials and resources, too.

Technical Requirements

The software must use software and hardware technology that is commercially available.

The required operating system must be commercially available.

The developer must provide the software to the user in a format that is easy to install or install the program for the user. The developer should not expect the software user to be well versed in computer technology or secondary programs, such as SQL server, MS Access, and so forth.

The software must have minimal errors and problems that interfere with the use of the software program.

The software must be easy to learn and logically set up.

The response and turnaround time for displays and reports must be reasonable based upon today's standards.

The Child Nutrition Database (CN-D) must be the primary database in the approved software.

The software must use appropriate search functions to allow the user to search for CN-D food items, local food items, recipes, and menus. At a minimum, the software must allow the user to search by name (or description) and ID number (CND#, recipe number, and so forth).

The software should allow the user to save all data. The user should be prompted to save data when data will be lost.

The user must be able to display or print all reports.

The software developer must have a system in place for backing up and restoring the user's data. This may be part of the software or a service provided by the developer.

Additional Recommendations:

Plan a system of updating the software as technology changes, such as operating systems, web, software and hardware.

Provide a report that lists food items currently used in menus or recipes that has been changed to the status of discontinued ("d") or removed from the CN-D.

Allow the user to be able to display and print all reports at the discretion of the user. *It is recommended that reports display before printing*. The user should be able to select additional print options (partial, category, or range) before printing the report because many reports may not need to be printed in their entirety. The user should be able to choose to print any report.

Provide the option for the user to save any report or export to common word processing or database software, as needed.

Provide the user with more flexibility for searching for food items and recipes.

Allow the user to search the entire string for matches, such as searching the entire full description of a food item, instead of only the first word. It is also acceptable to allow the user to select from broader or narrower search options.

Provide the capability to limit all searches to category. This often will help the user by limiting the number of items in the search results and providing hits that are related to the desired item. But, since users do not categorize foods the same way, we recommend that the developers do not require the user to search by category for all searches.

Confirm with a message that the user wants to delete before actually deleting. A simple message to confirm deletion of data can prevent accidental deletion of data.

Establish rounding rules for the software program, so that rounding of nutrient values is consistent throughout the program.

Optional Functions

The following functions or features are optional and considered "added value" functionality by the U.S. Department of Agriculture (USDA). Since these functions involve nutrient analysis, or the required meal pattern, these functions must be checked if they are added to the approved software.

USDA Recipes

Inclusion of the *USDA Recipes for Schools*, produced by USDA, as production recipes for use by schools participating in the CNP, is ***not*** required. If these recipes are added to the software by the developer, they will be spot checked. The software evaluators will check a subset of the USDA recipes with each evaluation. In this section recipes from the *USDA Recipes for Schools* are referred to as "USDA recipes".

The *USDA Recipes for Schools* can be obtained in pdf format from the Team Nutrition (TN) or National Food Service Management Institute (NSFMI) Web sites (TN – http://www.fns.usda.gov/tn/Resources/usda_recipes.html or NSFMI - http://www.nfsmi.org/ResourceOverview.aspx?ID=115

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Old, outdated USDA production (or quantity) recipes, such as the 1988 *Quantity Recipes for School Food Service* and 1995 *Tool Kit for Healthy School Meals* may not be included in the software program.

The source of the USDA recipes must be listed as "local" or "developer-added". Use of a company name or abbreviation is permitted. The source may not include USDA unless it is clear that it is developer-added, such as "developer-added USDA recipe".

The USDA recipes must be locked. The original copy of the recipe, as entered from the USDA recipe by the software developer must be maintained in the software. The user may not have the capability to edit the original copy of the USDA recipe, as entered by the developer.

The user must be able to copy a USDA recipe.

The user must be able to rename and save the copied recipe.

The user must be able to edit the copied recipe.

Copies of the USDA recipes must have the source tag of "local" or "user added".

The USDA recipe number (such as B-02) must be included.

The nutrient analysis of the recipe must be calculated from "as consumed" ingredients and amounts. The recipe may be: 1) linked to the corresponding nutrient analysis of the recipe as a food item in the Child Nutrition Database (CN-D) or 2) entered using the Yield

Factor Method (YFM) (with “as consumed” ingredients and amounts). The developer may allow the user to enter both a raw and “as consumed” ingredient with only the “as consumed” being used for the nutrient analysis. For more information about the nutrient analysis of recipes, refer to the documents ***Guidelines for Including USDA Production Recipes in the Software Programs Approved by USDA for NSMP and SMI*** (See Appendix B) and ***Nutrient Analysis Protocols: How to Analyze Menus for USDA's School Meals Programs*** (See Appendix B).

For the nutrient analysis of USDA recipes, when there is a choice of ingredients (alternate ingredients), such as frozen corn rather than canned corn, the first ingredient should be used in the nutrient analysis. If the recipes are linked to the corresponding CN-D food item for the nutrient analysis, this rule should be followed on the production recipe that uses “raw” ingredients. The developer may create variations of the recipes that include the alternate ingredients, if not already included in the *USDA Recipes for Schools*. Users should be allowed to copy the USDA recipes and edit the ingredients for variations or optional ingredients to whatever is actually used in the school food service.

For the nutrient analysis of USDA recipes, if there are also optional ingredients listed, such as adding raisins to a muffin, they should <u>not</u> be included in the nutrient analysis of the recipe. Optional ingredients that are not included in the nutrient analysis should also not be included on the production recipe. If the recipes are linked to the corresponding CN-D ingredient for the nutrient analysis, these rules should be followed on the production recipe that uses “raw” ingredients. The developer may create variations of the recipes that include the optional ingredients, if not already included in the *USDA Recipes for Schools*.

Frequently Asked Questions about the Voluntarily Added USDA Production Recipes

1) *May we include the **USDA Recipes for Schools** as a separate recipe database?*

   Yes. The *USDA Recipes for Schools* may be included as a separate recipe database or included in the main recipe database for the software.
2) *Are the **USDA Recipes for Schools** available in a downloadable format that we can import into our software?*

   No. At this time, the ***USDA Recipes for Schools*** are only available in pdf format.

3) *Should we include the food-based meal pattern crediting (or contributions) for the **USDA Recipes for Schools**?*

   Yes. If the developer provides fields for the credit or contribution to food-based meal pattern food groups for production recipes, this information as provided by the *USDA Recipes for Schools* should be included. The ingredient amounts listed on the recipe cards (pdf file) must be used for the recipe. The serving size from the recipe card (pdf file) must be used. If the user copies the recipes, the amounts for the crediting

contribution or “provides” statement should be removed, requiring the user to check and re-calculate, if necessary, the contributions to the food-based meal pattern food groups.

4) *What do you mean by “corresponding food in the CN-D”?*

   USDA has calculated the nutrient analysis of all the *USDA Recipes for Schools,* along with many of the variations of these recipes. Each recipe has been added to the CN-D as a food item with the nutrients per 100 grams of the prepared recipe. This nutrient analysis is based upon the prepared or “as consumed” recipe. The serving size of the recipe has been added as a Weights file entry for this food item. Developers may choose to link the production recipe to this analysis from the CN-D. Refer to ***Guidelines for Including USDA Production Recipes in the Software Programs Approved by USDA for NSMP and SMI*** on the HMRS Web site for more information (See Appendix B.).

5) *How do I use the spreadsheet of recipe ingredients that accompanies the* ***Guidelines for Including USDA Production Recipes in the Software Programs Approved by USDA for NSMP and SMI****?*

   The spreadsheet was created to guide the software developers who link their production recipes for the *USDA Recipes for Schools* to the corresponding analysis of the recipe as a food item in the CN-D. It was also developed to provide examples of “as consumed” ingredients for those software developers who want to enter the *USDA Recipes for Schools* as nutrient analysis recipes or link a production recipe to “as consumed” ingredients. The ingredients and amounts shown are for the “as consumed” product. The software developer may use other similar ingredients, but the nutrient analysis should be very close to duplicating the results on the recipe card.

6) *What if an ingredient on the spreadsheet of recipe ingredients that accompanies* ***Guidelines for Including USDA Production Recipes in the Software Programs Approved by USDA for NSMP and SMI*** *is no longer in the CN-D?*

   The software developer may substitute another food item from the CN-D, National Nutrient Database for Standard Reference (SR), or another source, such as a food label. The software developer should try to match the preparation description of the ingredient as closely as possible. Schools should be instructed to copy the *USDA Recipes for Schools* and enter food or ingredient items they actually use if they differ from the listed ingredients.

7) *Do we have to use the spreadsheet of recipe ingredients that accompanies* ***Guidelines for Including USDA Production Recipes in the Software Programs Approved by USDA for NSMP and SMI****?*

No. The spreadsheet is meant to be a guide for the software developers to show the types of ingredients that should be used and the adjusted amounts for some ingredients.

8*) What if there is no suitable raw ingredient in the CN-D?*

Since the analysis of school meals is to be based upon "as consumed" ingredients and amounts, there is limited data in the CN-D for raw food items that are not typically consumed raw, such as meat, pasta. The software developer may use any suitable raw food item from the local database or another source, such as the SR.

Food-Based Meal Pattern Functions

Approved software programs are specifically developed and approved to support the nutrient requirements (dietary specifications) of the Final Rule: Nutrition Standards in the National School Lunch and School Breakfast Programs (1/26/12). State agencies are required to analyze menus for calories, saturated fat, and sodium during administrative reviews. Some State Agencies (SAs) or School Food Authorities (SFAs) may want to use the approved software to ensure that their menus will meet the food-based meal pattern requirements, however, while the software developer may add this functionality, this functionality is not evaluated and the software is not approved for the food-based meal pattern aspects of the Final Rule.

The software must <u>not</u> calculate the credit or contribution amounts for any recipe or menu item for the food-based meal pattern requirements. Calculation of the credit or contribution of a recipe or menu item to the food groups required is a complex task. Methods for completing this task by software have not been approved by USDA. SFA's and SAs are trained to evaluate ingredient yields and recipes for crediting and may enter this information into the software.

Additional Recommendations:

Include a disclaimer stating that the food-based functionality of the software has not been evaluated or approved by USDA. The intent of USDA-approved nutrient analysis software does not include a food-based component. The software specifications do not include calculating how foods credit toward meal pattern requirements. The software specifications do not include a food-based evaluation process, and are not set up with standards or an evaluation component for crediting foods toward food-based requirements. However, many developers have added food-based functionality as a result of their customers' requests.

It is recommended that the software does not attempt to evaluate the food-based components against the required amounts (meal pattern requirements). There are some unique aspects of the food-based requirements that allow schools some flexibility with some of the meal pattern requirements, such as substitution of vegetables for fruit at breakfast**.** In addition, there are some specific requirements for certain foods or food subgroups within food components that are not applicable to the entire component. Tallying the amounts provided for each food group per day is acceptable.

Evaluation and Approval Process

All nutrient analysis software approved by the United States Department of Agriculture (USDA) for use for Lunch and Breakfast Administrative Reviews must undergo testing and evaluation by the USDA.

Software Evaluation Project

The primary purpose of the Software Evaluation Project is to conduct the testing and evaluation of commercially available nutrient analysis software designed for use with school food service. Software is submitted voluntarily by the software developers.

The Software Evaluation Project is part of USDA's Food and Nutrition Information Center's (FNIC) Child Nutrition Team and consists of the Software Evaluation Coordinator (SEC) and evaluators from the FNIC staff The project is funded through an interagency agreement with USDA's Food and Nutrition Service (FNS).

The evaluators, led by the SEC, conduct the evaluations of the nutrient analysis software Approved by USDA for Administrative Reviews. The evaluators test and evaluate the commercially available software to verify that the specifications and requirements have been met. Before software can be approved by USDA, all required functions must be incorporated into and working correctly in the software. The evaluators also make recommendations for improvements.

The testing and evaluation process for new software can take one to two years. Software developers should plan accordingly. The approval process moves faster for developers who consult with the SEC during product development; add the test food items, recipes, and menus provided by the Software Evaluation Coordinator; check the software prior to submission to be sure the major specifications and requirements have been met; and turn the software around quickly between evaluations. Evaluations may be delayed when a large number of software have been submitted at the same time.

Support materials

Support materials for current and new software developers, including this specifications document, are provided on the Healthy Meals Resource System (HMRS) Web site (See Appendix B).
The SEC is available to answer questions and address concerns as the software developer moves through the evaluation process.

It is required that before submitting a program for evaluation and approval, software developers evaluate their software using the checklist evaluation document available on the HMRS Web site ((See Appendix B).

Preliminary checklist evaluation

When the software developer is ready to submit their nutrient analysis software, the developer first completes the preliminary checklist evaluation using the checklist evaluation document available from the Software Support section of the HMRS Web site (See Appendix B). The developer must provide written documentation that the preliminary checklist evaluation was completed. The developer must add brief text that points the evaluator to the program functionality that meets each requirement to a copy of the checklist evaluation document.

After completing the preliminary checklist evaluation on the software, the software developer sends the completed checklist evaluation form to the software evaluation coordinator. The developer then makes arrangements to provide the software to the SEC. The software developer is responsible for providing access to the software for all evaluators for all evaluations. The software program may be provided via Web access or a developer-owned laptop. The evaluators have limited capabilities to install software on their computers. If the developer cannot provide the software by Web access or a developer-owned laptop, the developer must contact the software evaluation coordinator to discuss options for installation. The developer is responsible for shipping costs for all software and hardware sent to and returned from the evaluators.

The SEC or other software evaluator first completes a preliminary checklist evaluation of the software. The evaluator reviews the software using the checklist evaluation document provided by the developer. The purpose of the preliminary checklist evaluation is to determine if the major requirements have been met by the software before moving into the full evaluation.

If the evaluator determines that the specifications and requirements have not been met, the developer must make corrections and pass the checklist evaluation before continuing through the evaluation process. The time frame for making the corrections is at the discretion of the developer. After the program passes the checklist evaluation, the evaluators will begin the full evaluation.

Full evaluation

After the software passes the preliminary checklist evaluation, the evaluators begin the full evaluation. At least two evaluators complete the full evaluation of the new software. This evaluation is similar to the checklist evaluation, but it is more comprehensive. The evaluators check the finer details of required functionality with the goal of ensuring an accurate nutrient analysis.

When submitted for the full evaluation, the software must have the current release of the CN Database (CN-D). If the submission for the full evaluation is during the period of transition to the new release of the CN-D, the software developer may submit with the previous release. However, if the approval date is close to the submission date for the new release, the software developer will be asked to submit with the new release before being approved. If the software is approved with the previous release, the software developer will still need to submit with the new release by the deadline.

After the full evaluation is completed, the developer will be given a list of any final corrections that must be made before the program is approved. The developer makes any remaining corrections and resubmits the program. Usually, the developer must make at least one set of corrections before passing the full evaluation.

Final Approval

After the software program passes the full evaluation, the SEC sends the reports to FNS to request approval of the software. If the FNS staff concurs with the results of the evaluation, the software developer will be notified by email message that FNS granted approval of the nutrient analysis software by USDA for Administrative Reviews. The software will be added to the list of approved software on the HMRS web site, as soon as the email message is sent and the software developer provides the correct contact information.

Marketing of Approval Status

Software developers may not market their nutrient analysis software as approved by USDA for Administrative Reviews until the email message granting approval has been received by the software developer. Developers are discouraged from selling to state agencies for use with administrative review requirements until the software is approved.

USDA highly recommends that State Agencies do not purchase software until it is on the approved software list on the HMRS Web site.

The only marketing language permitted by FNS for both print and electronic product literature is as follows: “This nutrient analysis software is USDA-approved for Administrative Reviews.” The developer may refer to the approval as “approved by USDA for use with Administrative Reviews. The marketing language may not imply that more

programs or modules are approved in addition to the nutrient analysis software. Please consult with the SEC if you need assistance with acceptable marketing language.

USDA symbols or logos are intended for the official use of the USDA only and must not be used for software marketing materials or websites; logos are expressly excluded from use to imply endorsement of a commercial product or service. The USDA symbol or logo may not be used by anyone outside of USDA without permission. Modified logos that have the appearance of an endorsement made by the Department are also not permitted.

Please ensure that all product literature for the nutrient analysis software approved by USDA for Administrative Reviews is compliant with the marketing language and use of logos requirements.

Subsequent Evaluations

CN-D Checks

All nutrient analysis software approved by USDA for Administrative Reviews must be submitted each time the CN-D is updated, usually annually. Software developers are required to update their software with the most recent CN-D release within 90 days of when the new release is made available. The developer must make arrangements with the SEC to submit or make the software available for evaluation.

The SEC or other evaluator will conduct a database check evaluation on the approved software. This is a shorter evaluation that focuses on the correct implementation of the CN-D data from the most recent Release. The evaluator will also spot check the *USDA Recipes for Schools* if included in the approved software.

When the approved software passes the database check evaluation, the SEC sends the reports to the FNS to notify FNS that the developer has complied with the requirements for approval for Administrative Reviews. An email message will be sent to the developer with the evaluation results. Approved software remains on the approved software list during the evaluation process for the CN-D Checks.

If a developer fails to submit the software with the new release of the CN-D by the assigned date, FNS will begin the process of removing the approved software from the list of approved software programs for the following school year.

Resubmission Evaluations

All approved software will undergo a longer resubmission evaluation approximately every five years. Scheduling of the resubmission evaluation depends on the number of approved programs, number of new programs currently in progress, and changes made to the currently approved software. The SEC will inform the

software developer when it is likely that this company's approved software will be evaluated.

It is strongly recommended that before submitting for the resubmission evaluation, the software developer completes the preliminary checklist evaluation using the checklist evaluation document available from the Software Support section of the HMRS Web site. (See Appendix B.)

Required Corrections and Compliance

If the approved software is found to require corrections, either due to not meeting the specifications and requirements or technical issues, the SEC will inform the software developer and provide a report by email with details about the required corrections. The software developer has 90 days to make these corrections. The software must be resubmitted to the SEC within the 90 days.

If the corrections still have not successfully completed the required changes, the software developer has an additional 30 days to make these corrections. The software must be submitted to the SEC within the 30 days.

In some cases, if a good faith effort is being made to make corrections, the SEC and FNS may grant an extension on the submission date.

If the software developer does not comply with the request for corrections or does not submit with corrections, the software will be removed from the list of approved software programs for the following school year.

Major Changes in the Approved Program

The software developer must resubmit the software if there is a significant change in the software, such as a change in platform, operating system, major upgrade, or new software. Examples of significant changes include phasing out old software and introducing new software, change to a Web-based software, and creation of a scaled-down or enhanced software for use by selected customers, modifying a program for use by a specific audience. The SEC will help the software developer determine if the software must be evaluated and re-approved.

Appendix A – Glossary of Terms Used in the Specifications and Functional Requirements Document for Nutrient Analysis Software Approved by USDA for Administrative Reviews

Age/Grade Group – this refers to the age or grade range for the nutrient standards, or dietary specifications, from the Final Rule. The age/grade range is provided by the U. S. Department of Agriculture (USDA), as it appears in the Final Rule.

Approval status – the state of being approved by USDA for Administrative Reviews.

Approved by USDA – shortened term used to refer to the approval of nutrient analysis software by USDA for Administrative Reviews. Also referred to as "USDA-approved" or "approved by USDA for Administrative Reviews"

Approved software program – shortened term used in this document to refer to nutrient analysis software Approved by USDA for Administrative Reviews.

Checklist evaluation – preliminary evaluation conducted on all new software submitted with the intent of obtaining approval by USDA for Administrative Reviews. This evaluation is a quick check for implementation of the specifications and requirements.

Child Nutrition Database (CN-D) - the database of food items and their nutrient values maintained by USDA for use in the approved software programs.

Child Nutrition Database Number (CND#) – the identification number used for food items in the CN-D. Also, referred to as the CN Code.

Daily Value – Term used to refer to the nutrient value used as a target amount of a nutrient by the Food and Drug Administration on the food label

Developer-added – Refers to additional data or functionality added to the approved software program by the software developer, such as food items added to the food item or ingredient database or nutrient data added from another source other than the CN-D.

Dietary Specifications – The nutrient standards for calories, saturated fat, and sodium for the age/grade groups included in the Final Rule.

Evaluator – Person on staff or hired by the Food and Nutrition Information Center (FNIC) or FNS to evaluate software programs to determine if the specifications and requirements are met.

Feeding Figure – the offered number of meals to be served for a menu

Final Rule – Refers to the Final Rule: Nutrition Standards in the National School Lunch and School Breakfast Programs (1/26/12) published as a requirement of the Healthy, Hunger-Free Kids Act of 2010.

Food item – Refers to items in the CN-D or program's local database that includes foods, beverages, condiments, and so forth; refers to the function of maintaining food items in the program's database that are to be used in recipes and menus

Food and Nutrition Information Center (FNIC) – FNIC is the part of USDA which has an interagency agreement with FNS to coordinate the evaluation of the approved software programs.

Food and Nutrition Service (FNS) – FNS is the part of USDA which oversees the Child Nutrition Programs (CNP), including the evaluation and approval of software for Administrative Reviews.

Food-based meal pattern requirement – Refers to the food group component requirements of the Final Rule. The food-based meal pattern requirement is based upon meal patterns with specific component and quantity requirements met by offering food items from four food components: meat/meat alternate, vegetables and/or fruits, grains/breads, and milk.

Food label – refers to the Nutrition Facts panel where nutrient information for a food is displayed to the consumer.

Full description – refers to the descriptor field of the Food Description (FDES) file of the CN-D.

Full evaluation – refers to the extensive evaluation that all nutrient analysis software must undergo before t approved by USDA for Administrative Reviews.

Healthy Hunger-Free Kids Act of 2010 – The law which required the publication of the Final Rule: Nutrition Standards in the National School Lunch and School Breakfast Programs (1/26/12)

Healthy Meals Resource System (HMRS) – a collection of resources related to the CNP that is available on the World Wide Web and maintained by USDA's FNIC.

Ingredient –.refers to food items used to create a recipe; sometimes used to refer to the food item database in nutrient analysis software or foods added to the software by the user.

Local – any data added to the software by the user or developer, i.e., data that is not provided by USDA as part of the CN-D.

Local food items – food items added by the user or developer.

Nutrient analysis – refers to the calculation and display of the amounts of nutrients and other nutritive components, such as calories or ash, present in a food item, ingredient, recipe, or menu.

Nutrient data – the information that is available about nutrient content of food items.

Nutrient standard – a goal amount of a nutrient; the required amount of a nutrient to be provided to a specific age/grade group. In the Final Rule, the nutrient standards are referred to as dietary specifications.

Nutrient value – amount of a nutrient assigned to a food item.

Percent Daily Value – the percent of the Daily Value that is provided in a serving of the food item. Present on the food label as a guide to determine the amount of a nutrient provided in a serving of the food item.

Production recipe – a recipe designed for quantity food service, such as in a school setting that lists ingredients using raw ingredients and amounts with instructions for preparation of the recipe; also referred to as a cook's recipe or quantity recipe.

Quantity Recipe - a recipe designed for quantity food service, such as in a school setting, which lists ingredients using raw ingredients and amounts with instructions for preparation of the recipe; also referred to as a production or cook's recipe.

Resubmission evaluation – in-depth evaluation of approved nutrient analysis software that occurs approximately every five years.

Software developer – private software company with approved nutrient analysis software or in the process of creating or modifying software to meet the specifications and requirements for approved nutrient analysis software.

Software Evaluation Coordinator (SEC) – The SEC coordinates and manages the evaluation and approval of the approved nutrient analysis software.

Software Evaluation Project – refers to the entire task of evaluating and approving nutrient analysis software for Administrative Reviews.

Software – refers to software developed for use with Administrative Reviews.

Specifications document – refers to this document; refers to the *Specifications and Functional Requirements Document for Nutrient Analysis Software for Administrative Reviews.*

United States Department of Agriculture (USDA) – the branch of the government under which the FNS and FNIC are located; responsible for overseeing the Child Nutrition Programs.

User – person who uses the approved nutrient analysis software, usually State Agency personnel or a School Foodservice Authority.

User-added – information added by a person who uses the approved nutrient analysis software, not the software developer.

USDA-approved – shortened term used to refer to the approval of nutrient analysis software by USDA for Administrative Reviews. Also referred to as "USDA-approved" or "approved by USDA for Administrative Reviews".

USDA Recipes for Schools – a set of production (or cook's) recipes developed by USDA for use in CNP.

Weighted nutrient analysis – method of calculating the nutrient analysis of menus taking into account popularity, or frequency of choice, of menu items.

Yield – amount obtained from a recipe; can be a number of servings, such as 50 servings, or a larger quantity, such as "1 gallon" or "1 sheet pan".

Yield Factor Method – method of calculating the nutrient analysis of recipes that requires that each raw recipe ingredient be converted to its ready-to-serve or cooked form and amount.

Appendix B - Resources for Developers of Approved Software Programs

Many of the resources below were referred to within the document *Specifications and Functional Requirements Document for Nutrient Analysis Software Approved for Administrative Reviews.*

Resources are listed in alphabetical order.

Approved Nutrient Analysis Software Programs
http://healthymeals.nal.usda.gov/software.html

This is the list of nutrient analysis software currently approved by the United States Department of Agriculture (USDA) for Administrative Reviews.

Child Nutrition Database
http://healthymeals.nal.usda.gov/cndatabase.html

The Child Nutrition Database (CN-D) is the database required for inclusion in the approved nutrient analysis software.

Child Nutrition Database Contractor
http://www.cndatabase.fns.usda.gov/

Food manufacturers may submit nutrient data for their food products directly to the contractor for inclusion in the next release of the CN-D.

Database for Standard Reference (SR) – See link for *USDA National Nutrient Database for Standard Reference (SR)* below.

Nutrition Standards in the National School Lunch and School Breakfast Programs -
http://www.gpo.gov/fdsys/pkg/FR-2012-01-26/pdf/2012-1010.pdf

The regulations for school meals programs, specifically the National School Lunch Program (NSLP) and School Breakfast Program (SBP), are published in the CFR.

Nutrition Standards for School Meals -
http://www.fns.usda.gov/cnd/Governance/Legislation/nutritionstandards.htm

This page on the FNS Web site provides information and support materials about the regulations for school meals in the Final Rule: Nutrition Standards in the National School Lunch and School Breakfast Programs (1/26/12)

Food and Drug Administration Web site
http://www.fda.gov/food

The Food section of this Web site provides information about nutrient information required on food labels.

Food Buying Guide for Child Nutrition Programs
http://www.fns.usda.gov/tn/Resources/foodbuyingguide.html

The *Food Buying Guide for Child Nutrition Programs,* with yield data for more than 1,200 food items*,* is designed to help 1) determine the right amount of food to buy, and, 2) for the food-based meal pattern requirements, the specific contribution each food makes toward the meal pattern requirements.

Food Industry Data Submission for the Child Nutrition Database (CN-D)
http://www.cndatabase.fns.usda.gov/

Food manufacturer's who wish to have nutrient data for the products they produce for schools added to the CN-D may submit their data to the Database Contractor at this site.

Guidelines for Including USDA Production Recipes in USDA-approved Nutrient Analysis Software Programs
http://healthymeals.nal.usda.gov/softwaresupport.html

This document was written to assist software developers who voluntarily add the *USDA Recipes for Schools* as production recipes with ingredients to their software. An accompanying spreadsheet, *Ingredients Used in Yield Factor Method Analysis of USDA Recipes for Schools*, is also found at this Web site.

Healthy Meals Resource System (HMRS)
http://healthymeals.nal.usda.gov

This Web site is the primary site used for the Software Evaluation Project. The list of approved nutrient analysis software, support materials for software developers, and CN-D are found here.

Moisture and Fat Changes in Recipes –
http://healthymeals.nal.usda.gov/softwaresupport.html

This document is the original guidance document written to assist software developers with the calculations of nutrient analysis with moisture and fat changes; includes examples.

Regulations for NSLP and SBP - See *Nutrition Standards in the National School Lunch and School Breakfast Programs* link above.

Support Materials for Software Developers –
http://healthymeals.nal.usda.gov/softwaresupport.html

This link takes the user to the list of support materials for the software developers developing software or with currently approved software. The guidance documents ***Moisture and Fat Changes in Recipes*** and ***Guidelines for Including USDA Production Recipes in the Software Programs Approved by USDA for NSMP and SMI*** are found here.

System Components and File Formats document –
http://healthymeals.nal.usda.gov/cndatabase.html

This document, *Child Nutrition Database, Version CNx: System Components and File Formats,* is updated with each version or release of the CN-D. This document includes information about the files, fields, and data included in the CN-D.

USDA Foods Web site
http://www.fns.usda.gov/fdd/schfacts

This page provides links to the USDA Foods (formerly commodity foods) Fact Sheets developed for USDA foods (commodities) expected to be available for schools and institutions participating in the NSLP and other Child Nutrition Programs. The Fact Sheets include the nutrient analysis of the USDA (commodity) Food.

USDA National Nutrient Database for Standard Reference (SR) -
http://www.ars.usda.gov/ba/bhnrc/ndl

The Nutrient Data Laboratory (NDL) part of the USDA's Agricultural Research Service has the responsibility to develop USDA's National Nutrient Database for Standard Reference (SR), the foundation of most food and nutrition databases in the US, used in food policy, research and nutrition monitoring. .The SR is updated annually. .

USDA Recipes for Schools – The *USDA Recipes for Schools* are found at two Web sites:

Team Nutrition –
http://www.fns.usda.gov/tn/Resources/usda_recipes.html

National Food Service Management Institute (NSFMI) –
http://www.nfsmi.org/ResourceOverview.aspx?ID=115

The *USDA Recipes for Schools* is the set of production recipes developed by USDA for use in the CNP. Inclusion in the approved software is optional.